Cohesive Institutions and Political Violence

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July 9, 2021

Abstract

Can revenue sharing of resource rents be a source of distributive conflict? Can cohesive institutions avoid such conflicts? We exploit exogenous variation in local government revenues and new data on local democratic institutions in Nigeria to study these questions. We find a strong link between rents and conflict. Conflicts are highly organized and concentrated in districts and time-periods with unelected local governments. Once local governments are elected these relationships are much weaker. We argue that elections produce more cohesive institutions that help limit distributional conflict between groups. Throughout, we confirm these findings using individual level survey data.

Keywords: conflict, ethnicity, natural resources, political economy, commodity prices

JEL Codes: Q33, O13, N52, R11, L71

*We thank Belinda Archibong, Rabah Arezki, Tim Besley, Eli Berman, Oeindrilla Dube, Ruben Durante, Quoc-Anh Do, James Fenske, Roland Hodler, Anke Hoeffler, Hannes Mueller, Luis Martinez, James Robinson, Dominik Rohner, Jake Shapiro, Andrea Tesei, Mathias Thoenig, Oliver Vanden Eynde, Juan Vargas, Austin Wright, Katia Zhuravskaya and seminar and conference audiences at Chicago Harris School, Copenhagen University, University of Sussex, the Annual Empirical Studies of Conflict Conference, NEUDC, CSAE, PEDD, University of Oxford, University of Warwick, Queen Mary London, LSE, Sciences Po/PSE, HEC Lausanne and the Center for Global Development for comments. Stephan Kyburz acknowledges support by the Swiss National Science Foundation (grant #P2BEP1_172257), the Centre for Economic Performance at LSE, and the Center for Global Development, where part of this research was conducted.

1 Introduction

The peaceful division of scarce resources is a distinguishing feature of successfully functioning states. A country's political system and its cohesiveness are important for managing resource allocation. A lack of cohesiveness – the failure of different social groups to be meaningfully represented in institutions – has been identified as a key feature that may explain the emergence of fragile and low income development clusters (Besley and Persson, 2011a). Natural resource rents – relative to other sources of government revenue – are particularly prone to trigger violence through a multitude of channels (Collier and Hoeffler, 1998; Caselli et al., 2015; Berman et al., 2017). Such rents are distinguishable from other revenues because they are windfall profits that mostly directly accrue to the state, as opposed to being indirectly sourced through taxation. Windfall profits encourage rent-seeking behavior and this contest for rents may involve violence (van der Ploeg, 2011) and is associated with repressive regimes, rentier states and clientelism (Brollo et al., 2013; Besley and Persson, 2011; Carreri and Dube, 2017).

Understanding why some countries suffer a resource curse can inform the design of institutions (Ross, 2015). Leveraging the framework of Besley and Persson (2011), we study three questions. First, do large windfalls of politically controlled resource rents trigger violence to contest (or enforce exclusion) from these rents? Second, are elected (vis-a-vis appointed) local governments more successful in discouraging the use of violence to contest rents? Third, to what extent does variation in the degree of cohesiveness that these different institutional setups generate explain why violence is being used to contest rents in one, but not the other regime.

Our answers provide ample evidence to support the theoretical predictions of Besley and Persson (2011). Further, we confirm an important proposition that has been left unexplored: do cohesive institutions discourage the use of political violence? Besley and Persson (2011)'s results strongly depend on a single model parameter capturing the extent to which institutions are constraining incumbents. Less cohesion implies that more

resources are diverted away from common public goods, and towards patronage and clientelism, generating a unique value for a group holding political power. Through this channel, investments in capacities to forcefully retain power (incumbent) or gain access to it (opposition) can be rationalized. With fully cohesive institutions, the sharp predictions break down: the more cohesive institutions are, the less likely it is that revenue shocks will induce investments in political violence. The key role that the cohesiveness of institutions plays has not been properly empirically studied due to a lack of time-variation in institutions. This paper fills this gap. There are at least three challenges to finding a context that maps well into the theoretical framework and allows for a clean test of the theoretical predictions. First, natural resources can cause conflict through many direct and indirect channels, posing a significant challenge for non-experimental studies to causally identify any specific individual channel.[1] Second, there are few cases where countries exhibit significant and meaningful variation in their institutional setup that are not confounded with other concurrent changes. Such broader institutional changes, for example brought about by democratization, are compound treatments that make it harder to distinguish independent effects of specific institutional features. Third, measuring and identifying the degree of cohesiveness of institutions is not trivial. While political institutions may seem non-cohesive along certain dimensions such as religion, ethnicity or identity, the extent to which the public actually *perceives* institutions as non-cohesive depends on the extent to which society is polarized along these lines to begin with.

We argue that Nigeria provides a unique context that allows us to navigate these challenges. First, we exploit Nigeria's system of oil revenue sharing across the three tiers of government. This has several advantages. On the empirical side, the revenue sharing follows a fixed rule and the size of transfers is guided by the movements of world oil prices. Further, the spatial concentration of oil wealth in the South of the country

[1]The existing literature has suggested – among others – that natural resources encourage inter-state conflict (Caselli et al., 2015), secession (Morelli and Rohner, 2015), improve the feasibility of rebellion (Berman et al., 2017); other channels explored are due to the negative externalities of resource extraction (Sexton, 2018; Humphreys, 2005) and a lack of transparency around extraction activity (Christensen, 2017).

allows us to isolate the effect that institutionalized rents have on political violence at the local level. Hence, it is not confounded by any direct effects of extraction activity on violence. Lastly, on the conceptual side, the revenue sharing matches a key tenet of the theoretical model in Besley and Persson (2011): resource rents directly accrue to the incumbent government, generating an asymmetry between incumbent and opposition over access to rents. Second, Nigeria allows us to exploit variation in the extent of local democratic practice *within country* and even *within constitution* over time due to existence of rich and idiosyncratic variation in the extent to which local governments are appointed or elected – holding constant the overall institutional setup. Lastly, we can leverage the fact that Nigeria is a multi-ethnic society in which politics is significantly influenced by the ethnic affiliation of population groups (Alesina et al., 2016; Hodler and Raschky, 2014).

We make three findings. First, consistent with the theoretical prediction in Besley and Persson (2011), we document a significant and economically sizeable link between resource rents and violence. These effects are driven by *positive shocks* to resource rents, meaning higher revenues accruing to the local governments. The ensuing low-intensity conflict is highly institutionalized involving government repression and militias using targeted violence, though not broad, open rebellions involving riots or protests. The finding suggests that revenue sharing – an institutional feature common to at least eleven African countries – implies *a novel type of resource-induced conflict*: while violence may be used to voice grievances or contest the allocation of resources, the patterns are inconsistent with all-out civil war, which is not surprising given that civil war may compromise access to rents in the first place (e.g. secession of non-oil producing areas is not a credible contest goal). Revenue sharing may exacerbate latent low intensity distributional conflicts in places far removed from physical resources, but we show that this conflict is associated with places where governance is weak and institutions are non-cohesive.

Second, we find that having an elected local government systematically weakens the link between rents and the incidence of political conflict. Rather than focusing on any

individual election – which may cause violence directly (Long et al., 2017) – we contrast consecutive periods over which local governments are elected (as opposed to appointed) and study the systematic link between shocks to rents and violence across such periods. Our identification strategy allows us to tackle many plausible endogeneity concerns, while providing sharp results that match key theoretical predictions in Besley and Persson (2011). Further, while our main results are derived from the widely used ACLED conflict data, we also turn to *individual level micro data* to corroborate our findings, documenting that fear of political violence, actual victimization, and even engagement in conflict broadly follows the pattern suggested by the aggregate data. Given the still limited availability of data in the African context, we think this cross-check speaks to the overall robustness of our results (Berman and Matanock, 2015).

Having an elected local government can affect political violence through a multitude of channels. Our third set of findings highlights that – consistent with the theory – the *higher degree of cohesiveness of institutions* that elections (as opposed to appointments) produce, seem to drive the results. We construct a measure of non-cohesiveness capturing the extent to which the ethnic make-up in an area is aligned with the ethnicity of the state governor. We provide ample anecdotal evidence suggesting that when local governments are appointed, these appointments are skewed towards the ethnicity of the state governor. We validate this measure using individual level micro data and document that the link between political violence and resource rents is strongly driven by this measure of non-alignment – but only when local governments are appointed, not when they are elected.

This paper relates to three strands of literature. First, the literature studying the important link between natural resources and civil conflict. Dube and Vargas (2013)'s seminal paper studies civil conflict in Colombia, comparing oil versus coffee producing areas, and finding evidence of both the opportunity cost and the rapacity effect. Sánchez De La Sierra (2020) studies violence in coltan and gold mining regions in Congo. Berman et al. (2017) study resource related conflict in Africa around fine spatial grid cells with mining activity,

and Caselli et al. (2015) focus on interstate conflict over natural resources, while Limodio (2019) exploits variation in silver prices to provide exogenous variation in extent of terrorism finance in Pakistan. Bazzi and Blattman (2014) provide an overview of the literature exploiting commodity price shocks to study conflicts to find little evidence that increasing commodity revenues incentivize state capture through violent means. Similarly, in a cross-country study, Cotet and Tsui (2013) find little evidence that oil discoveries increase the likelihood of violence, unlike Lei and Michaels (2014) who exploit giant oilfield discoveries. Ciccone (2018) provides new cross-country evidence and asks important questions about the construction of commodity price shock measures. Arellano-Yanguas (2011) find that decentral revenue sharing in Peru is associated with increased political conflicts, though Orihuela et al. (2019) suggests results are sensitive and require strong contextual understanding. Our paper document a *new type of resource conflict* affecting regions far away from the physical location of the resource, due to the institutionalized sharing of resource revenues that we can explicitly measure. This observation highlights a potential problem for empirical designs that study conflict over physical control of the resource across space: revenue sharing is a spillover that violates the non-interference assumption inherent in difference-in-difference estimations used in this literature.

We also relate to the literature on how institutions, especially democracy, shape development outcomes and civil conflict. Brückner et al. (2012) document in a cross-country panel study that positive oil price shocks are followed by moderate improvements in democratic institutions (measured using the Polity-2 dataset), while Caselli and Tesei (2016) suggest that resource windfalls make autocratic regimes even more autocratic, while not affecting democratic countries. Martinez-Bravo et al. (2014) find that the introduction of local village elections in China increased public goods expenditure financed by villagers, caused a moderate decline in income inequality, and likely reduced corruption, while Martinez-Bravo et al. (2017) suggest that elite capture may persist through democratic transitions. On the latter, Collier and Rohner (2008) suggest that democracy,

due to the possibility of violence having an electoral cost, may be constraining the use of force. On the other hand, the act of holding elections may encourage violence to affect turnout (Collier and Vicente, 2014; Eifert et al., 2010; Long et al., 2017). Natural resource rents may have further effects on political outcomes, not necessarily involving violence in the form we document here. The concern with this work is the multitude of channels through which these effects could operate. It highlights the value of working with subnational data exploiting time variation in *a specific democratic institution*, while holding constant the overall institutional context, as we are able to do in this paper. Yet, it also raises the concern that our subnational time-variation in transition to and from having elected governments may be endogenous to commodity price cycles. We find no evidence for this as local governments transition in and out of having elected local governments quite unsystematically. Lastly, there is also a literature that exploits time variation in resource shocks on the quality of institutions holding the overall institutional framework fixed. Carreri and Dube (2017) show how oil price shocks affect which type of political candidate is elected in oil-producing municipalities in Colombia, while Brollo et al. (2013) study how additional resource revenues accruing to a government induce corruption.

Lastly, we relate to the growing literature on ethnic politics in Africa in general, and on power sharing as an important institution in particular. Politicians cultivate favor among their constituents by appealing to ethnic and regional identities (Burgess et al., 2015; Hodler and Raschky, 2014), which may result in significant ethnic between-group inequality (Alesina et al., 2016). Francois et al. (2015) document a high degree of proportionality between ministerial positions and ethnic group population shares, while Eifert et al. (2010) find that ethnic identities become stronger before elections as political competition intensifies. While Fearon and Laitin (2003) suggests that ethnic diversity is not associated with a higher civil conflict incidence, Buhaug et al. (2008) show that the political exclusion of ethnic groups from political power poses a conflict risk. Cederman et al. (2010) analyze the state as an institution captured by particular ethnic communities.

Reynal-Querol (2002) emphasizes the importance of establishing consociational democracies – proportional representation systems that produce coalition politics – to prevent ethnic civil wars generated because of religious differences. While the creation of new government districts along ethnic lines may reduce conflict, political violence is exacerbated in ethnically polarized new districts because of a nascent contest for political power, as shown for Indonesia by Bazzi and Gudgeon (2016). Galindo-Silva (2015) shows that improved representation of political groups in Colombia, reduces political violence. However, even though the political representation of previously excluded groups may improve power sharing at the local level, Fergusson et al. (2021) suggest that it may also provoke retaliatory violence of the incumbent elites. Rohner et al. (2013a) document that conflict reduces inter-ethnic trust, while the model in Rohner et al. (2013b) suggests that measures fostering inter-ethnic trust and trade may be effective in avoiding a vicious cycle of conflict (see also Mueller and Rohner, 2018 on power sharing in Northern Ireland).

Lastly, there is a small literature on Nigeria. Sala-i Martin and Subramanian (2013) suggests that Nigeria's institutions are negatively affected by the oil wealth undermining growth; a more historic account of oil wealth and violence is given by Azam (2009), while Collier and Vicente (2014) examines how voter intimidation is effective in reducing voter turnout. Fenske and Zurimendi (2017) provides evidence on the long-run effects of oil wealth increasing inequality; analyzing state capacity, Rasul and Rogger (2018) investigates how management practices in the Nigerian public sector, such as autonomy of the bureaucrat as well as incentives and monitoring, affect service delivery.

The remainder of the paper is organized as follows. Section 2 provides background on the institutional setup and discusses the data used. Section 3 examines whether political rents induce conflict. In Section 4 we study whether having an elected local government weakens this link. Section 5 provides evidence of the underlying mechanism. Section 6 concludes.

2 Institutional Context and Data

We begin by describing the system of revenue sharing and local governance in Nigeria, discuss the nature of conflict and local institutions. Along the way we introduce our data. A more extensive discussion of the context is provided in Appendix B.

2.1 Fiscal federalism and natural resource revenues

Nigeria is organized as a Federation of States in the Nigerian Constitution of 1999. The constitution stipulates a system of revenue sharing between the three tiers of government (federal, state and local governments) according to a fixed formula. The collected revenues are an oil production tax and value added tax (VAT). Oil revenues make up the most significant share of government revenues and are important for public finances at all levels of government: in 2013 oil revenues accounted for 75% of all revenues (World Bank, 2013). Almost 90% of gross revenues available to local governments is due to disbursements from the federation account (World Bank, 2013).[2] The exogenously sourced monthly allocations to local governments thus constitute the main source of political rents.

The revenue sharing system stipulates that, of the gross total of public revenues, 20.6% are allocated to local governments, 26.7% are allocated to the states, and 52.7% are allocated to the federal government (vertical formula).[3] The share allocated to local governments is divided across each of the 774 local governments with each local government having a specific weight ω_i (with $\sum_i \omega_i = 1$). These weights are essentially time-invariant and fixed at a baseline year. Appendix Table A1 highlights that population and landmass are driving the cross-sectional variation in the index weights ω_i, the resulting rich variation in the index weights across the country is shown in panel A of Figure 2.

We digitize data on the monthly allocations and the index weights used in the allocation formula from the Federation Account Allocation Committee at the Nigerian Federal

[2]Local governments have limited ability to raise revenues with Ekpo and Englama (2008) showing that they raise less than 5% of gross revenues primarily from property tax and market and trading licenses.

[3]The oil producing states receive 13% percent of oil revenues directly, called the *Derivation Principle*. Our results are robust to excluding the oil producing states.

Ministry of Finance. This gives us a monthly balanced panel of allocations across all 774 local government areas for the period June 1999 to July 2014. Variation in the monthly allocations is mostly driven by the variation in oil prices as the amount of oil produced is quite stable over our sample period.[4] The actual allocations to local governments are separated into *statutory* and *extraordinary* allocations. Both of these allocations respect the same sharing rule as captured in the index weights ω_i. The statutory allocations are regular monthly disbursements calculated based on a benchmark oil price that tracks the spot market price at a discount. Panel B in Figure 2 presents the statutory allocations against the oil price over time. Revenues that accrue due to the difference between the spot market and benchmark price are accumulated in the Excess Crude Account. Extraordinary allocations are disbursed irregularly and based on idiosyncratic political decisions typically following periods when significant fiscal buffers were accumulated.[5] In the empirical exercises, we focus on the statutory allocations, but use the extraordinary allocations for robustness checks.

2.2 Political violence

Nigeria is in a state of low-intensity conflict. Small scale violent events cause numerous casualties each year across all parts of the country. We propose that these conflicts are — to a large extent — contests between political factions for the control over local governments, driven by lucrative institutionalized resource rents. Incumbency of local government councils conveys the perks of the allocations from the Federation Account nurtured oil revenues. These conflicts fit in well within the Besley and Persson's (2011) contest logic with a few contextual adaptations. The contest logic in the Nigerian context works through politicians investing in violence to secure access to or build up pressure

[4] Appendix Table A4 provides a formal decomposition of the variance in allocations highlighting that the bulk of variation is explained by price (as opposed to quantity) variation.

[5] The benchmark price usually tracks the spot price at a discount resulting in accumulation of a fiscal buffer. Appendix Table A2 presents a decomposition of within and between LGA variation for these different types of allocations (overall, statutory, and extraordinary allocations) indicating that the within-LGA variation accounts for the most of the overall variation in allocations.

on local governments. Incumbent politicians use state resources to either employ state security or they may also additionally hire private thugs to intimidate civil society or other politicians. The opposition politicians hire thugs and armed militias to contest access to local governments. While in Besley and Persson (2011) either of the two groups has full control over the government (incumbency), having access to local government could also mean having partial power, i.e. a seat on the local government council (partial incumbency). Hiring thugs is a common strategy among Nigerian politicians and anecdotal evidence abounds. In contrast to the model, where the opposition politicians collect taxes from its own citizens to finance a private army, in the Nigerian case, opposition politicians often rely on wealthy private donors, so-called political "godfathers", to finance militias. While in the model, the opposition group's investments in violence increase the likelihood of taking over power, in Nigeria investing in violence is also used to extort funds from local governments. As a response to the difficult security situation, governments invest public funds in security operations, so-called "security votes".[6] The security votes are not only used to repress and fend off the opposition, they are often a pretence for politicians to embezzle public funds. Security votes are a way of diverting resources to various cronies and groups within the patronage network. This also includes governments paying armed groups to stay non-violent (see for instance our detailed account of Boko Haram provided in Appendix B.4). While the model separates the states of peace, repression and civil conflict, the situation in Nigeria is obviously less clear, with fluid transitions between different states of violence and peace.

Civil conflict data over the entire sample period is drawn from the Armed Conflict Location and Event Data Project (ACLED).[7] The variation in conflict across Nigeria that we use in our empirical analysis is displayed in Figure 1, indicating the number of violent

[6]For a detailed description about the nature security votes, see e.g. Egbo et al. (2012).

[7]The ACLED conflict events data is available at https://www.acleddata.com/. We use alternative conflict data to check the robustness of our results. Specifically, we use data from Uppsala Conflict Data Program Georeferenced Event Dataset, available at http://ucdp.uu.se/, and the Global Terrorism Database GTD, available at https://www.start.umd.edu/gtd/.

events for each of the 774 local government areas from 1999 to 2014.[8] Raleigh and Dowd (2015) provide a detailed description of variables and coding methodology. The ACLED project provides details of geographic locations of conflict events, including latitude and longitude, dates, and additional information on the actors involved. In particular, it codes the actions of rebels, governments, and militias within unstable states, allowing an analysis of the local level factors and the dynamics of civil and communal conflict. We use this to construct a balanced LGA-level monthly panel from 1999 to 2014. The numerous accounts of violent conflicts over local political power fuelled by the resource rents allocated every month are a result of investments in violence both by the government and opposition groups. We provide detailed anecdotal evidence about these low-intensity conflicts between political factions in Appendix B.3. Importantly, we will see that this violence is concentrated around *positive shocks* to political rents and does *not seem to involve mass-mobilization* involving protests and riots, but rather involves violence orchestrated by the incumbent resorting to the military and political militia groups. Grievances felt by outsider groups, that see transfers made by those in power to their own group, seem to be prevalent (see section 5). Violence is reported to be associated with the misconduct of local government chairmen, mismanagement of local public finances such as failure to pay salaries, the embezzlement of public funds, and failure to provide education and health care. The acts of fraud are used by opposing political groups to mobilize and provoke violent reactions and contest their share of the allocation. An overt manifestation of the contest for rents and political control occurs around local government elections. We report a significant increase in civil violence in the month leading up to local elections and the month of the election itself, as depicted in Figure A1 in the appendix. Though our results, as we will show in detail, are not driven by election related violence but rather occur systematically within periods of the different regimes.

[8]For a detailed discussion of violence in Nigeria and the ACLED data set, see appendix B.3.

2.3 Cohesiveness of local government institutions

What makes institutions cohesive? Besley and Persson (2011) describe cohesive institutions as more representative of the population, including minority protection through a system of constitutional checks and balances. They use a measure of executive constraints as a crude proxy for cohesive institutions. We argue and provide evidence that local government institutions appear more cohesive when local government councils are elected as opposed to appointed by state governors. Elections allow for opposition parties to compete legally and non-violently. They elevate the public profile of local politicians and make local councils (at least partly) accountable to the public – as opposed to the state governor when they are appointed. Since local government councillors are elected in single seat districts by plurality rule, councillors represent the various wards in a local government area. Elections are thus a way of enabling minority (ethnic) groups' representation representing minority protection as conceptualized in Besley and Persson (2011).[9]

Elected or appointed local government councils The 1999 constitution of Nigeria requires that local government councils are elected by the people. It also stipulates that state governments organize and finance the local government elections. This gives the state governments some leeway in how they legislate for and conduct local government elections. The first local council elections during the transition from military to democratic rule were held in November/December 1998 in all local government areas. The first term of the original local councils ended in May 2002. At that time, confusion emerged as the national voter register used in the 1999 general election had not yet been updated for new elections.[10] In June 2002, state governors appointed committees to (temporarily) run the local governments, called "transition committees". Elections of local councillors have

[9] Local government councils consist of a number of councillors and a chairman. The single seat districts are the wards of each local government area. In these single-seat electoral districts where a minority has a majority in that district (minority-majority district), it is possible for the minority to win a councillor seat and be represented in the local government council.

[10] A supreme court ruling in 2002 held that local government elections should not to be held until the voter register was updated (reported e.g. in the newspaper *This Day*, May 8 2002).

been controversial ever since.[11] In the subsequent years, state governors started to exploit their idiosyncratic political power to postpone or cancel local elections altogether. As a consequence, many local government councils ceased to be elected bodies, and became appointed bodies. This results in significant de-facto variation in local political institutions across Nigeria that we exploit in this paper.

Measurement We draw data on the conduct of local government council elections or appointment of so-called "transition" or "caretaker" committees from a media content analysis using Nigerian newspapers, presented in more detail in Kyburz (2018). Since official information on local councils is not available we rely on local newspapers from which we extract information on local elections. In particular, we extract information for each of the 774 local government areas on the dates when local elections were held, the period of tenure of elected councils, and the periods in which appointed committees were in power. By coding a dummy variable that captures whether a local council is elected (Elected = 1) or appointed as caretaker committee by the state governor (Elected = 0), we exploit the *de facto* variation in the 'state of democracy' at the local level. We do not analyze any individual election, but rather focus on consecutive periods in which local governments are elected (as opposed to appointed). Panel C of Figure 2 displays the geographic variation in the overall time that areas have an elected local government council between 1999 to 2014, while Panel D presents the overall share of local governments that are elected at a specific point in time. An in-depth discussion of local government responsibilities and council elections is provided in Appendix B.5.[12]

The cohesiveness of local government institutions depends, inter alia, on whether local councils are elected by the people or appointed by the state governor. We presume and provide ample anecdotal and empirical evidence that elected local government councils

[11] See Kyburz (2018) for a more detailed description of the controversy surrounding local government council elections and the appointment of caretaker committees.

[12] This is a rather coarse distinction between elected and appointed local governments. There naturally is variety in the quality and the conduct of local elections with some being more competitive, free and fair than others. Our coding represents a simplification of democratic realities on the ground but, as we demonstrate does capture meaningful variation among many shades of electoral local democracy.

involve more constituencies in the governing process. Elections are thus protecting minorities and put more constraints on the executive as they improve accountability and balance power. This is in contrast to appointments of local councillors by state governors that render the local government institutions less cohesive by eliminating any public accountability and deteriorate representation. They appear to maximize control over local governments and the distributions of rents to cronies. Appointed councillors can make transfers to their own groups without fearing repercussions. Anecdotal evidence suggests that the rents are often used for patronage, which may further grievances among marginalized groups. These grievances are likely to be pronounced in cases where local governments do not have electoral incentives to share the rents with the local population through the provision of common public goods (Besley and Persson, 2011). Because of the high volatility in oil prices, the flow of allocations into local accounts is both hard to predict and opens the floodgates to misappropriate public funds.

We show that the varying cohesiveness of institutions is borne out in peoples' perceptions of local governments as we demonstrate in section 5 using Afrobarometer microdata. Similarly, appointments generally appear to be made along ethnic lines thus revealing the non-cohesiveness of institutions.[13] Periods of appointed governments presumably exacerbate the prevalence of ethnic politics as state governors are likely to appoint co-ethnic cronies (Burgess et al., 2015; Hodler and Raschky, 2014). Grievances amid the population and cleavages between ethnic groups may intensify when politicians use ethnic identities to make financial transfers to their own group as modeled by Besley and Persson (2011). The non-cohesiveness of the local institutions leads to investments in violence by the opposition group, that tries to improve the chances of controlling the local government.

In the following section 3, we turn to showing that institutionalized resource rents induce political conflict, before presenting evidence that elected local governments weaken the link between rents and violence in section 4.

[13]The non-cohesiveness resulting in people feeling treated less fairly in periods when their own ethnicity is not aligned with the state governor's (see Table A18).

3 Do Resource Rents Induce Conflict?

We first present evidence that institutionalized resource rents are causing political violence. To allow for the later contrast, we restrict the estimating sample to only those time periods in which local councils are *appointed*.

3.1 Empirical strategy

Our estimation strategy consists of both an ordinary least squares and an instrumental variables estimation approach. Our baseline specification is

$$y_{jst} = \alpha_j + \gamma \times Alloc_{jst} + \delta_{st} + \varepsilon_{jst} \tag{1}$$

where the dependent variable y_{jst} indicates the incidence of conflict in local government area j, state s, and month t. $Alloc_{jst}$ are the monthly disbursements to a local government area. Throughout, we control for LGA-specific fixed effects, α_j, and state-by-time fixed effects, δ_{st}. While we obtain very similar results using less demanding specifications, the inclusion of state-by-time fixed effects is appealing for two reasons: first, states participate in the revenue sharing and thus, controlling for state by time fixed effects controls for those flows; second, they remove any state-specific non-linear conflict trends.

We expect our coefficient of interest γ to be positive, $\gamma > 0$, indicating that positive shocks to rents increase the incidence of repression and political violence. In the context of Besley and Persson (2011) this is because more rent accruing to the incumbent, all else equal, increases the value of holding political power for the incumbent (and of gaining it for the opposition) as this enables transfers to the own group if institutions are not cohesive. As a result, both the incumbent and the opposition invest in violence.

In addition to the OLS estimation, we use an instrumental variable approach to counter any endogeneity or measurement concerns in the monthly disbursements to local governments. Equation 2 represents the first-stage specification. The central input to the revenue sharing formula is the variable ω_j, which captures a local authority's share in the overall

revenue allocation. The second ingredient is a measure of the $Oil\ price_t$ which drives the bulk of the variation in overall revenues.

$$Alloc_{jst} = \alpha_j + \pi \times \omega_j \times Oil\ price_t + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \tag{2}$$

The second stage taking the instrumented allocations $\widehat{Alloc_{jst}}$ as regressors becomes:

$$y_{jst} = \alpha_j + \gamma \times \widehat{Alloc_{jst}} + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \tag{3}$$

As we will see, the revenue sharing formula is followed very closely. As a result, in order to conserve space, we do not show the IV estimates everywhere in the results.[14] The identifying assumption for γ in specification 3, representing the causal effect of natural resource rents on conflict, is that there is no other indirect way by which the interaction between $\omega_j \times Oil\ price_t$ affects conflict other than through the allocations. This would be a concern if there were other policies linked to the specific ω_j used for the revenue sharing. It would also be a concern if oil price shocks had a differential effect on e.g. economic activity in locations that is not captured through the interaction with the allocation weight.

3.2 Results

The main results, focusing on the periods in which local governments are *appointed*, are presented in Table 1 for both the OLS and IV exercises. The results suggest a significant and considerable relationship between civil conflict measures, and inflows of resource revenues during periods when local governments are *appointed*. The effects are sizeable: the point estimate in column (1) suggests that a one standard deviation increase in allocations is associated with a more than doubling of the conflict event incidence relative to the average incidence. This implies that revenue sharing and resource rents are a major

[14] All results are robust to either showing the IV or the OLS. These results are available upon request. The similarity in the OLS and IV estimates is owing to the fact that, as Appendix Table A4 reveals, the instrument and the allocation measure are tightly moving together with the R^2 measure of 97% in the specification with LGA and time fixed effects.

source of political conflict and violence. Columns (2) – (4) study the three types of events covered in ACLED: "battles" – involving any interaction between organized combatants, "violence against civilians", and "protests/riots". We see that rents are most strongly associated with an increasing incidence of battles and violence against civilians, while we observe a null result for protests and riots. We discuss this further below.

Columns (4) – (8) cover the groups involved in conflict, distinguishing between the military, political militias, communal militias, and rebels. The results indicate that the effects are mostly driven by conflict events involving the military, political and communal militias, and not by rebel violence. The latter is a telling null result: rebel groups, as per ACLED's definition are "political organizations whose goal is to counter an established national governing regime by violent acts [...] with a stated political agenda for national power (either through regime replacement or separatism)". Yet, as we argued earlier, secession is not a viable contest goal as as secession would cut most parts of Nigeria off from further transfers. Therefore, a null result here is not surprising. Lastly, in columns (9) – (10) we further decompose column (6), to study between which actors conflict unfolds: most events involve political militias either fighting the military or targeting civilians.

A comparison of the OLS and the IV results (Panel A and B) reveal a limited need for instrumenting in the first place since the gross statutory allocations are almost fully explained by the interaction term. The weak-IV test statistic is far from any levels that would merit concern regarding the weakness of the instrument.[15] Since the allocation rule is being tightly followed and the OLS and IV results are very similar throughout, for brevity, we do not report the IV estimates in all tables the remainder of this paper to preserve space. They are available upon request.[16] We also note no differential effects in

[15]This is not surprising as Appendix Table A4 suggests that the allocation rule is very closely followed with a specification without time and location fixed effects reaching an R^2 of 86%.

[16]The results are robust to a battery of checks: we obtain similar results when studying quarterly or annual resolution of the data; when considering *transformations of the conflict measures*; *alternative functional forms*; when flexibly controlling for the revenue sharing *formula weights*; when studying different conflict data altogether; or when removing Boko-Haram conflict events. As we perform the same battery of checks in the next section contrasting the elected vis-à-vis appointed time periods the relevant tables for these exercises are presented in Appendix Tables A12 - A17.

oil producing areas suggesting our results are not capturing contest over the resource.[17]

3.3 Discussion

The analysis suggests that resource revenue sharing may itself be associated with instability and violence in areas *far removed* from the actual location of oil production. We believe that we are the first to document this *institutionalized spillover effect*. This has broader implications since revenue sharing is quite common across countries, possibly implying a violation of the non-interference assumption inherent to difference-in-difference designs comparing natural resource producing areas to non-producing areas. Further, the conflict that we document is institutionalized – not involving mass riots or protests – which we would a-priori expect if resources are misappropriated. As we will see, the conflict is mainly driven by *positive shocks* to resource revenues, while negative shocks, if anything, are associated with slightly less conflict. The null result on protests and riots suggests that citizens may be poorly informed about revenue allocations or have a systematically different attitude to the misallocation of natural resource revenues as opposed to taxes (see e.g. Gadenne, 2017; Martínez, 2020). We next show that the link between violence and rents appears distinctly different when local governments are elected.

4 Do Elected Local Governments Promote Peace?

In this section we show that local democratic institutions can reduce the resource rent induced civil conflict demonstrated in the previous section.

4.1 Empirical specification

We follow the previous section to augment our specification to incorporate the data pertaining to periods in which local governments are elected. We estimate

$$y_{jst} = \alpha_{je} + \nu Alloc_{jst} \times Elected_{jst} + \gamma Alloc_{jst} + \delta_{st} + \varepsilon_{jst} \tag{4}$$

[17] See Appendix Table A3: there is only limited evidence of a slightly weaker relationship between resource rents and conflict in areas that are (likely) produce oil.

where the dependent variable y_{jst} indicates the incidence of conflict in local government area j, state s, and month t. $Alloc_{jst}$ are the monthly disbursements to a local government area. Having an elected local government enters through the interaction term $Alloc_{jst} \times Elected_{jst}$. Our location fixed effects α_{je} are specific to whether a local authority area has an elected or appointed local council. This implies that we allow there to be distinct conflict level differences of having an elected local government for each LGA. While less demanding specifications yield similar results, this implies that we fully abstain – for now – from studying any level effects that having an elected local government may entail and fully focus on the role of rents. Relative to the previous section, we are are particularly interested in the estimates of the coefficient ν, expecting it to be negative, $\nu < 0$. This would indicate that areas and periods in which the local government is elected sees significantly weaker link between resource rents and conflict. As with the previous section, we also estimate the corresponding instrumental variable specification.

4.2 Results

The results from this analysis are presented in Table 2. Panel A presents the OLS results. We find that upon adding the interaction of having an elected local government suggest that more cohesive institutions significantly weaken the relationship between resource rents and conflict that was documented in the previous section. Throughout, the estimated effect of the interaction term between the natural resource rents and the election status indicator, ν, is negative and statistically significant, at the 5% or 1% level in most estimations. As we will see further below, the linear regressions are likely to *underestimate* the effect of elected councils: the link is mostly weakened by positive shocks to resource rents, but not negative ones. In Panel B we present the same set of regressions applying our instrumental variable approach. If at all, results are even stronger and effect sizes larger. A comparison of the OLS and IV results (Panel A and B) reveal a limited need for instrumenting in the first place since the gross statutory allocations are almost fully explained by the interaction term $\omega_j \times Oil\ price_t$. The weak-IV test statistic is far from

levels that would merit concern regarding the weakness of our instruments.

We perform F-tests on the joint significance, testing whether $\hat{\nu} + \hat{\gamma} = 0$. Throughout most outcome measures we find a notably weaker and mostly insignificant relationship between resource rents and conflict in places with elected governments. We will posit the underlying mechanism in the next section but first tackle a few plausible concerns that one may have with the above exercise.

4.3 Addressing plausible concerns

There are several plausible concerns that we address in turn.

Elections A specific worry could be that elections change the nature of violent contest, concentrating violence near individual elections. While our results do not focus on any one specific election but study transitions between consecutive political regimes (periods of elected vis-à-vis appointed local governments), we can tackle this valid concern by restricting the estimating sample to exclude windows around individual elections.[18] If anything the results, presented in Appendix Table A5, suggest that our results on how elections change the relationship between resource rents and conflict become even sharper.

Another concern may pertain to the endogeneity of elections to local conditions or potentially, to the underlying resource rents. We tackle this in three ways. In Appendix Table A6 we document that most of the variation in election status is explained by our state by time fixed effects, suggesting that this is a decision that is taken *at the state level*. Hence, holding elections only in a select set of LGAs within a state – but not others – seems politically infeasible. Thus, the decision by the state governor to hold or not hold elections is probably exogenous to the conditions of any specific LGA. Second, we do not estimate the direct level effect of having an elected local government, but focus on the interaction term. We argue that this interaction term is exogenous to the conditions in

[18] In an event study in Appendix Figure A1, we show that there is an increase in violence in a tight time window around individual elections.

any specific location for two reasons: first, as already proposed, the decision to hold an election is taken at the state level with limited scope to take the specific conditions in any LGA into account and second, since oil price movements are erratic and state electoral commissions need at least three to six months preparation time, it seems implausible that e.g. conflicts are fought in anticipation of higher resource rents and elections. Lastly, we can directly test whether the residual variation in having an elected local government that remains after controlling for state by time fixed effects meaningfully correlates with an LGA's time-varying or time-invariant characteristics. Neither allocations in the last 3, 6, or 12 months, nor conflict in the last 3, 6, or 12 months, nor an areas climatic conditions, its ethnic make-up or its allocation weights (see Appendix Table A7 and A8) correlate with the residual variation left after controlling for state by time fixed effects. These three arguments leave us confident in interpreting the interaction term as a causal effect.

Potential withholding or deductions There may be concerns that LGA allocations may be withheld in period of instability or there may be deductions. Legally there is no basis for the federal or state government to withhold allocations as the sharing of revenues is set in the country's 1999 constitution. In Appendix B.2 we provide an extensive account of periods in which transfers may have nevertheless been temporarily affected by deductions or withholding. As we show in Appendix Table A9 our results are robust to generously dropping data that may have been affected by alleged withholding or deductions.

Direct favoritism Another concern may be governors' direct favoritism towards individual LGAs. We can directly control for this favoritism channel by including state governor-specific and election-status specific LGA fixed effects – these results are presented in Appendix Table A10. Since every state has, on average, 3.4 distinct state governors over our sample period and many see multiple transitions between elected vis-à-vis appointed status, this amounts to controlling for, on average, five distinct sets of LGA fixed effects. Despite this specification being extremely demanding – and likely introducing a lot of irrelevant control variables, inflating standard errors and resulting in a loss of statistical

power – we still observe very similar patterns.

Non-linear effects As we suggested before, the estimated effects on the interaction term we document in Table 2 are underestimating the true effect, due to non-linearities in the relationship between resource rents and conflict. We estimate a non-parametric water-color regression per Hsiang (2013), presented in Figure 3.[19] The left panel shows that, with an appointed local government, there is an association with negative shocks to resource rents being associated with less conflict, while positive shocks to resource rents trigger conflict. The right panel constructs the figure using the subset of data when local councils are elected: while negative shocks continue to be weakly associated with less conflict, positive revenue shocks are not associated with conflict. This result suggests that with elected local governments, the tensions over distributional disputes arising with positive revenue shocks are resolved in a non-violent manner. Furthermore, as evidenced by the green solid OLS regression line, the effects we document by estimating a linear regression *underestimate* the effect of having elected local governments, which mostly operates through its moderating impact during positive resource shocks.

Dropping each state in turn In Appendix Figure A3 we present the results that are obtained when dropping data from each state in turn visualized as a box-plot for any violence indicator. Throughout there is no evidence that the results – either the OLS or the IV – are particularly reliant on any one individual state.

Randomisation inference We also use two forms of randomization inference as an alternative method for inference. Figure A4 presents the results of a permutation test, whereby the LGA specific sequences of elected vs. appointed regimes have been shuffled randomly within each LGA. The kernel density plots out the distribution of point estimates of the interaction effect between the (shuffled) election dummy and the gross statutory allocations $\hat{v}$ in our main estimating specification. The red solid line corresponds to the point

[19] Results from a more conventional estimation method are presented in Appendix Figure A2. The method is described in more detail in Hsiang (2013).

estimate obtained using the true (non-shuffled) election status variable for the interaction term – for reference the dashed blue line provides the point estimate of the main level effect . It is clear that the interaction for the true election status variable lies on a far tail relative to the distribution of point estimates for the shuffled variable.

Figure A5 presents results from shuffling the election status variable *at the state level* as opposed to the LGA level. This requires us to assign binary values in case there is variation within state, with not all LGAs within the state holding the same status. This affects 1,328 state by time observations out of the total 7,104 observations. We assign election status to 1 if more than 50% of the LGAs in a state have an elected LGA at a point in time, assigning a value of zero otherwise. Despite this coarser measurement introducing noise, we are able to reject the null of no effect at around the 5% level.

Other robustness checks Our results are also robust to a battery of further checks. Appendix Table A12 shows that we obtain very similar results focusing only on the extraordinary allocations that can be triggered and shared according to the formula in case notable reserves accumulate. We further check our results using alternative conflict data in Appendix Table A13, transformations in the dependent variable in Appendix Table A14, for different temporal resolutions in Appendix Table A15, and alternative functional forms in Appendix Table A16. Further, controlling flexibly for index weights doesn't affect the results, shown in Table A17. Throughout the results are very similar. Next, we validate these results using micro-data.

4.4 Validating results using individual level micro data

To corroborate our findings, we use the Afrobarometer surveys to evaluate whether individuals' perceptions of violence map into our findings derived from aggregate data. Specifically, we focus on people's fear of becoming a victim of political violence, whether individuals have been victimized, and if people engage in political violence themselves. We construct a pseudo-panel of surveyed individuals at the LGA level. This has to be taken with a grain of salt, as the sampling is not representative at the LGA level and

unfortunately, not every question is asked in each round. Nevertheless, we can use this to study whether patterns are broadly consistent with the analysis from the conflict data.

To construct a measure of the revenue shock, we compute the total rents accruing to a local government area in the last 6, 12, and 18 months prior to the survey. The election status is coded based on the survey month. We then estimate the following specification

$$y_{ijst} = \alpha_j + \delta_t + \nu \times Alloc_{jt} \times Elected_{jt} + \gamma Alloc_{jt} + \beta \times X_{ijt} + \varepsilon_{ijt} \quad (5)$$

where now in addition the subindex i indicates an individual response and the allocation variables are constructed as described above. The results are presented in Table 3. A consistent image emerges: locally accruing resource rents increase individual fear of being a victim of political violence (columns 1 and 2), increase the actual victimization (columns 3 and 4) and importantly, indicate that they increase the propensity of individuals to engage in violent acts (columns 5 and 6). Once an LGA has an elected government, these associations are significantly weaker.

5 Do Differences in Cohesiveness Explain these Effects?

We next study whether local government elections – by improving the cohesiveness of local governments – weaken the link between resource rents and conflict.

5.1 Anecdotal evidence

Ethnicity plays an important role in Nigerian politics. We exploit the ethnic affiliation of state governors, who are known to make local government appointments along ethnic lines. There is ample anecdotal evidence to support this. For example, in Adamawa State, Governor Murtala Nyako, who was in office between 2007 and 2014, belongs to the Hausa-Fulani ethnicity that makes up 31% of the state population. In 2011, Governor Nyako was accused of favoring his Fulani co-ethnics when appointing local governments:

> He [Nyako] was accused of concentrating a large percentage of his appoint-

ments among his fellow Fulani ethnic stock especially to his kiths and kin of Mayo Belwa where he hails from. (Leadership, 23 February 2011)

To construct a measure of cohesion, we build a detailed map of the population shares of different ethnic groups in LGAs across Nigeria, exploiting the fact that the DHS survey rounds record the ethnicity of the respondents. We combine the data pertaining to all individual DHS surveys. The dominant ethnic group across LGAs based on population shares is presented in Appendix Figure A6.[20]

5.2 Measuring non-cohesiveness

In addition to the data on ethnic population shares we also collected data on the ethnicity of the state governor. Under the assumption that local governments are appointed along ethnic lines, with the state governor favoring members of their own ethnic group, these appointments are likely to impact the (perceived) cohesiveness of local governments in a heterogeneous way. In particular, in areas in which the local population is of the same ethnic group as the state governor, institutions seem relatively more cohesive compared to areas where the governor's co-ethnic population share is small. Our measure of non-cohesiveness captures the share of the local population that is of a different ethnic group to the state governor. Formally, denote E_{kt} the ethnic group of the governor in state k at time t. We infer the population share of the politically excluded i.e. non-aligned ethnic group in LGA j at time t, as

$$\text{Non-aligned ethnic group}_{jt} = \sum_{i \neq E_{kt}} p_{it} \tag{6}$$

where p_{it} are the ethnic group population shares. Since governors have limited terms in office, the governor's ethnicity is also changing over time, which produces a limited degree of time-variation in our measure of non-aligned ethnic groups. We can think of this

[20] Appendix Figure A7 displays the population shares of the ethnic groups mentioned above across Adamawa and Akwa Ibom State to illustrate the anecdotes. We use this to construct a measure of exclusion from political power based on the ethnicity of the state governor, which we describe next.

measure as the inverse of the cohesiveness parameter in Besley and Persson (2011), implying that areas and time periods with larger excluded populations (Non-aligned ethnic group$_{jt}$ $\rightarrow$ 1), are vulnerable to intergroup violence.

To assess whether our measure of exclusion is picking up a meaningful signal, we again turn to the Afrobarometer surveys. For some survey rounds, the data provides the ethnic affiliation of respondents, allowing us to measure *at the individual level* whether individuals from a different ethnic group to that of the state governor feel that their own ethnic group is treated unfairly. Appendix Table A18 highlights that this appears to be the case, suggesting that our measure of ethnic non-alignment is picking up some grievances. This evidence, together with the anecdotal accounts, suggests that ethnic politics is likely to matter and the exclusion measure should carry some signal relevant to the theory.

5.3 Empirical specification

We perform two related empirical tests with slightly less demanding empirical specifications. First, rather than ignoring any potential *level effect* of having an elected local government on conflict, we study whether the data suggests such a level effect and whether this is driven by areas in which a large share of the population is of a different ethnic group to the state governor. We estimate

$$\begin{aligned} y_{jst} &= \alpha_j + \eta \text{Elected}_{jst} \times \text{Non-aligned ethnic group}_{jt} \\ &+ \nu \times \text{Elected}_{jst} + \xi \times \text{Non-aligned ethnic group}_{jt} + \delta_t + \varepsilon_{jst} \end{aligned} \tag{7}$$

As suggested, this amounts to a test of Corollary 4 in Besley and Persson (2011), which proposes there to be a strictly lower likelihood of conflict in places with more cohesive institutions. As such, we would expect that any effect of having an elected local government on conflict levels should be driven by areas manifesting non-cohesiveness, i.e. those that stand out with high values in Non-aligned ethnic group$_{jt}$. Hence, in the above specification, we expect the estimate on the interaction η to be negative, $\eta < 0$.

The second exercise builds on the previous analysis and directly tests whether the link between resource rents and conflict is driven by places that have non-cohesive institutions. For ease of interpretation of the results, we use a dummified measure of the ethnic exclusion to indicate above- or below median Non-aligned ethnic group$_{jt}$. This allows us to contrast the extent to which the relationship between resource rents and conflict is systematically more pronounced in places and times with an appointed local governments with a sizable excluded population share compared to elected local governments with a sizable population share that is of a different ethnic group then the state governor.

Relative to the main estimation specifications 1 and 4, we add a full set of interaction terms to estimate the differential impact that resource rents have depending on whether an area has an appointed or elected local government and depending on the extent to which there is a notable population share in a district that has an ethnic group different from that of the state governor. Further, due to lack of statistical power, we need to make the time fixed effects less demanding – rather than including state-by-time fixed effects, we now include only simple time fixed effects. Here, we expect that resource rent induced conflict is most pronounced in areas with a significant share of the local population excluded from political power, when local governments are appointed. On the other hand, when local governments are elected, these areas should be mostly driving the weakening of the relationship between rents and conflict.

5.4 Results

We present these results in turn. Table 4 presents results from the first analysis, estimating whether having an elected local government has an effect on *levels of conflict*. Panel A presents the estimation of just the plain difference-in-difference estimation. Throughout the majority of estimated coefficients indicate that having an elected local government is associated with *less conflict*. The results indicate that conflict incidence is around 50% lower during time-periods when local governments are elected as opposed to appointed. Panel B studies a heterogeneous effect version, using the measure of ethnic exclusion.

As expected, the reduction in conflict is mostly driven by places that would see a notable share of the local population excluded from political power, when appointments are informed by the ethnicity of the state governor. This suggests that more cohesive institutions, which elections seem to generate, are associated with notably less conflict.

We next turn to study how resource rents and our implicit measure of the degree of cohesion interact. These results are presented in Table 5.[21] In Panel A, we document that indeed during periods when local governments are appointed, the impact of resource rents on violence is notably stronger in places with a significant sized population excluded from political power. Very systematically we find that exogenous variation in resource rents are more strongly associated with increased violence in places with a notably higher share of people likely excluded. In Panel B, we study how this relationship changes when including periods when local governments are elected, adding the relevant interaction terms. We estimate how the pass through of resource rent shocks to conflict differs between places and periods that have an appointed vis-à-vis elected local government and in which a notable share of residents is of a different ethnic group vis-à-vis the state governor. We find that the link between resource rents and conflict notably more pronounced in places and periods with an appointed local government and a notable population share that is likely excluded by virtue of having a different ethnic group vis-a-vis the state governor. This result is compelling as it illustrates the important role local elections may play in forming cohesive governments at the local level. It suggests that elected local governments are able to resolve contests in a peaceful manner.

We thus find ample evidence that the transition towards having elected local governments is systematically associated with changing conflict dynamics. The differential degrees of cohesion that the two distinct institutional setups (appointed versus elected) generate are at the heart of understanding political violence. While the level effect may be subject to some debate regarding potential excludability, we think we have a convinc-

[21] Thanks to an anonymous referee for the suggestion to present this results using binary indicators. Results with the continuous measure are provided for reference in Appendix Table A22.

ing case about the exogeneity of the interaction terms we study. Lastly, we turn again to micro-survey data to substantiate these conclusions.

5.5 Are elected local councils perceived to handle resources differently?

The results so far suggest that political violence ceases to be associated with resource rents during periods when local governments are elected. The evidence suggested that this is substantively driven by the systematic exclusion of ethnic groups from political power when local governments are appointed. This suggests that elected (as opposed to appointed) local governments are perceived to be managing resources differentially. We investigate whether having elected local governments improves perceptions of the quality of local governance. This directly maps into the previous analysis: does the perception of quality, corruption and distrust in government evolve in a fashion correlated with inflow of rents? As before we use consecutive rounds of the Afrobarometer survey data measuring how the relationship between the approval of local governments, the extent of trust and the perception of corruption change as a function of rents.

The results are presented in Table 6. Columns (1) and (2) suggest that resource rents are associated with negative perceptions of local governments during periods when these are appointed. Having elected local governments significantly weakens this link. In columns (3) and (4) we perform a similar exercise studying corruption perceptions: resource rents are associated with increased perceived corruption, yet, only when local governments are appointed. Lastly, in columns (5) and (6) we show that when governments are appointed, resource rents are associated with lower levels of trust. Again this relationship is significantly weaker when local governments are elected.

These results, together with the results presented in Table 5, suggest that elected local governments are capable of resolving the contest for resource rents in an institutional form within the local government, and not invoking violence. The change in the relationship between resource rents and improved approval and trust of people in the local government suggests that electoral incentives may improve the quality of resource management

and sharing. We highlight with a type of placebo exercise that these results are specific to the perception of the quality of local governments and are not confounded by concurrent changes in the perceptions of quality of government at other levels of government. Leveraging the fact that similar measures of the perceptions of the quality governance are collected for the Federal Parliament and State level institutions, we show in Appendix Table A19 and A20 that there are no similar patterns between resource rents, election status of local governments and perceptions of *federal* or *state level institutions*.

6 Conclusion

Whether scarce resources are allocated in a concordant and peaceful manner or invoke coercion and violence is an important question that guides a lot of political economy research. This study contributes to our understanding of how a particular type of democratic institution – elected local governments – can shape and moderate the interactions between groups in a peaceful fashion. This question is particularly relevant to countries with significant resource wealth, such as Nigeria, as democratic oversight and a tight institutional framework are proposed to be critical for ensuring that countries are not cursed by their resource wealth. While theory has suggested the importance of institutions, empirical studies of these questions has struggled to provide sound evidence.

Exploiting within-country variation in democratic institutions at the local level in Nigeria, we show that having an elected local government is key to explaining why resource rents are associated to a much lesser extent with conflict in some places compared to others. In doing so, we are able to exploit institutional features that significantly relax identification concerns, while at the same time matching key tenets of theoretical models. We exploit the sharing of natural resource revenues across tiers of government according to a fixed formula, which ensures that we can rule out any direct effects that the extraction activity can have on political violence. Rather, we can focus exclusively on the impact of these rents and document that, when local governments are appointed, rents are associ-

ated with instability and political violence. We show, consistent with the theory, that the underlying mechanism is working through the different degrees of cohesion that the two means of selection of local governments provide. The more disconnected local governments are from their populations – proxied by the ethnic make-up – the more likely it is that a positive shock to resource rents is associated with political violence. We confirm these findings both in aggregate as well as using individual level micro survey data.

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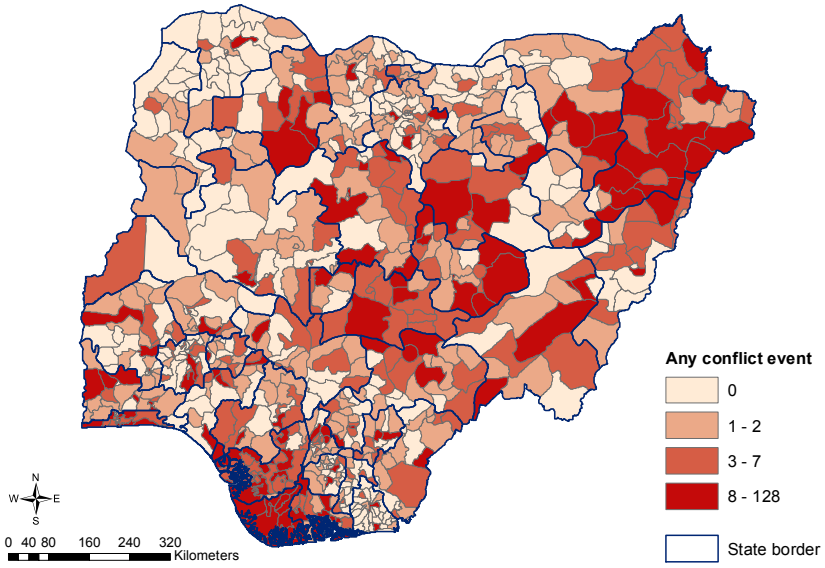
Figures and Tables

Figure 1: Conflict intensity across Nigeria

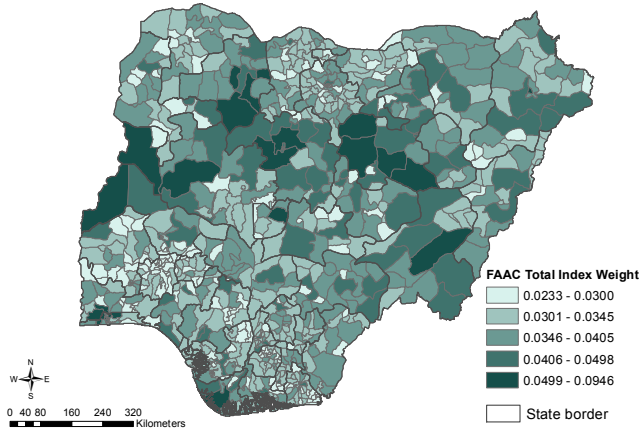


Notes: The map shows the distribution of conflict events across local government areas in the period 1999 to 2014. *Sources*: conflict data is from *ACLED* and administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/).

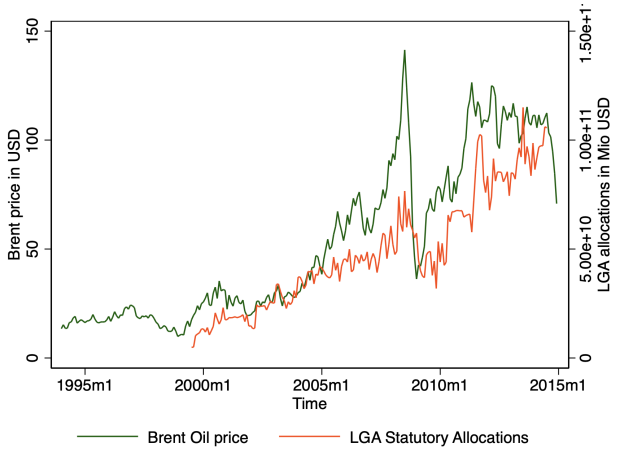
Figure 2: Spatial and temporal variation in revenue sharing and the election status across in Nigeria from 1999-2014

Spatial and temporal variation in revenue sharing

Panel A: Formula weights

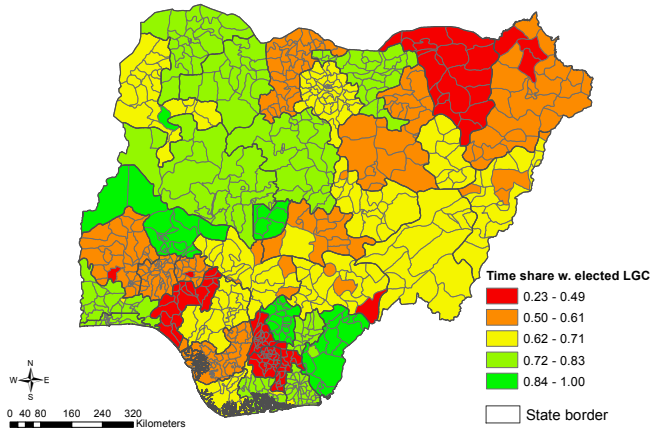


Panel B : Allocations

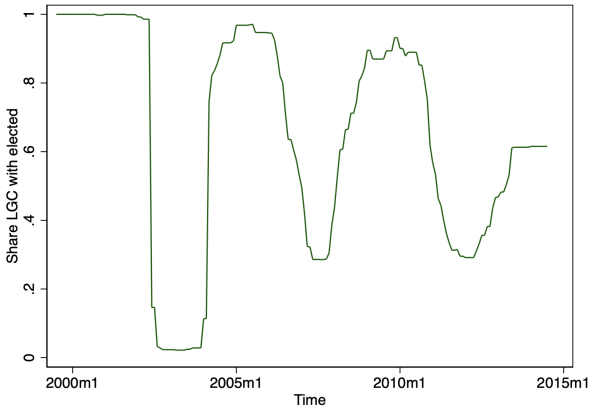


Spatial and temporal variation in election status

Panel C: Spatial variation in election status

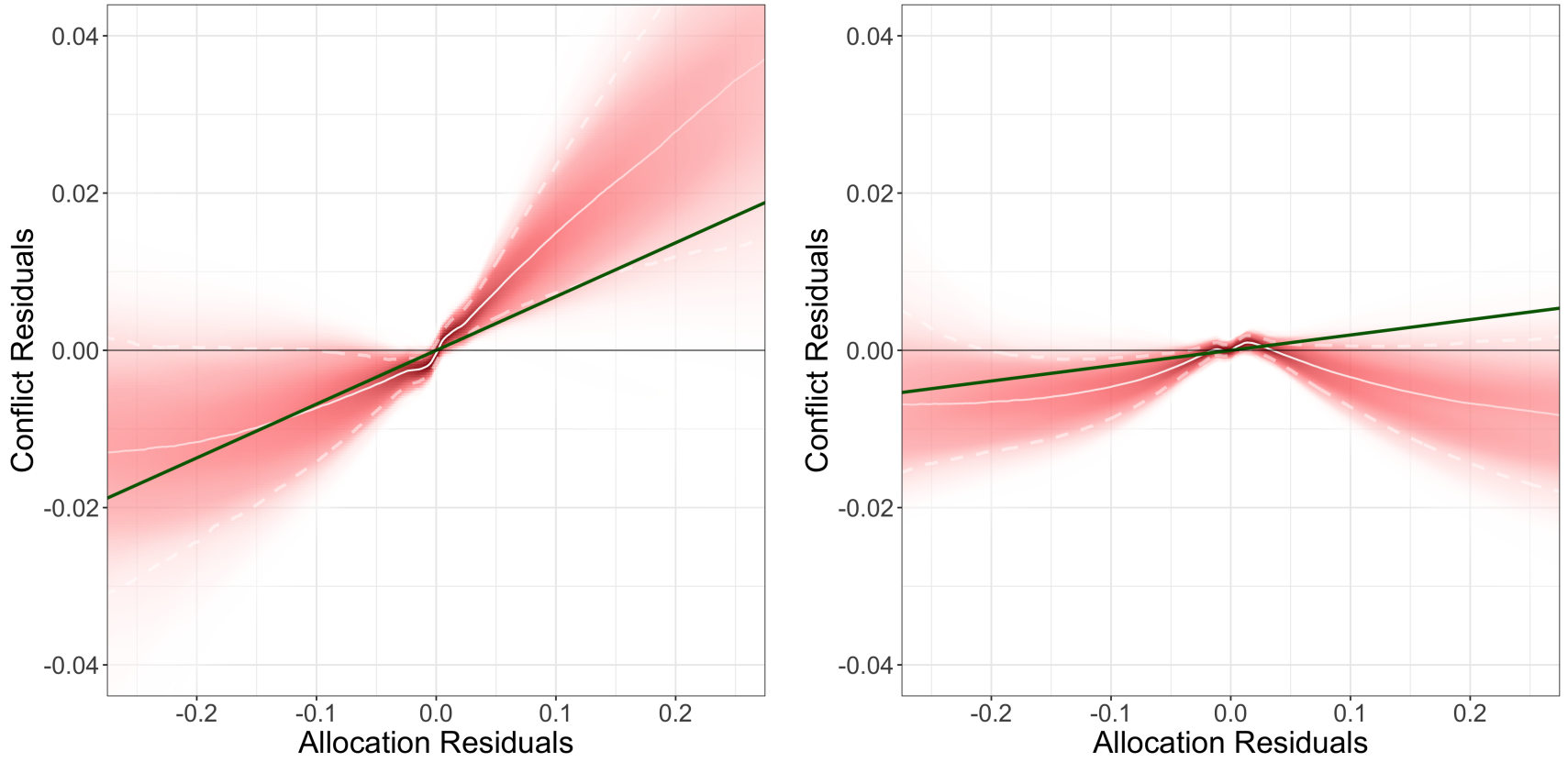


Panel B: Temporal variation



Notes: Figure presents the spatial and temporal variation exploited in the paper. The top panels focus on the revenue sharing with *Panel A* presenting the share of revenues that accrue to each local government area based on the horizontal revenue sharing formula, while *Panel B* presents the monthly variation in overall revenue allocations made to local governments in aggregate (right scale) along with the monthly prices of Brent Crude oil (left scale). The bottom panel focuses on the election status of LGAs over time with *Panel C* presenting the variation across space and *Panel D* presenting the variation across all LGAs over time.

Figure 3: Positive and Negative Resource Shocks Under Elected and Appointed Regime



(a): Appointed Local Council

(b): Elected Local Council

Notes: The figure showcases the non-linear impact of positive- versus negative revenue shocks on conflict. The figure presents results from bootstrapped lowess regressions on the residuals of the dependent variable, after having demeaned the data by LGA and state-by-time fixed effects. The method first computes lowess regressions from 1000 bootstrapped samples of the demeaned data. It then calculates density estimates of the predictions from the lowess regressions for several hundred cuts along the y-axis and distributes a specified color proportional to that density estimate. The resulting figure displays the uncertainty in the regressions visually. The median value of the bootstrapped lowess predictions is indicated as a solid white line, while OLS regressions are indicated as a green line. Figure *(a)* presents the results for periods with appointed local councils, while Figure *(b)* displays the results for periods with elected local councils.

Table 1: The effect of resource rents on political violence when local councils are *appointed*

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Statutory Allocations	0.237***	0.116**	0.153***	0.017	0.118**	0.199***	0.065**	-0.010	0.099**	0.136**
	(0.077)	(0.048)	(0.051)	(0.035)	(0.046)	(0.062)	(0.027)	(0.007)	(0.042)	(0.055)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127
Panel B: IV										
LGC Statutory Allocations	0.341***	0.126**	0.199***	0.054	0.153***	0.252***	0.075**	-0.005	0.109**	0.160**
	(0.107)	(0.057)	(0.059)	(0.040)	(0.058)	(0.086)	(0.029)	(0.011)	(0.049)	(0.068)
Kleibergen-Paap weak IV	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127

Notes: Table presents regression results capturing the impact of revenue shocks on conflict incidence focusing on the subsample in which LGAs are appointed. All dependent variables are binary indicators capturing whether an event occurred in an LGA. All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable is the monthly revenue allocation to a local government council. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by time and LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: Resource rents and conflict – moderating effect of having an elected local government

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Statutory Allocations	0.213***	0.115***	0.141***	0.009	0.118***	0.187***	0.054**	-0.011	0.097**	0.140***
	(0.073)	(0.043)	(0.049)	(0.030)	(0.042)	(0.060)	(0.024)	(0.008)	(0.037)	(0.051)
Elected × LGC Statutory Allocations	-0.131*	-0.083**	-0.084*	-0.006	-0.086**	-0.128**	-0.045**	0.026***	-0.082**	-0.111**
	(0.068)	(0.041)	(0.047)	(0.040)	(0.043)	(0.057)	(0.020)	(0.009)	(0.039)	(0.049)
Joint Test:										
Allocations + Elected x Allocations = 0	.082	.031	.057**	.003	.033	.059*	.009	.015**	.015	.029
	(.054)	(.024)	(.027)	(.037)	(.029)	(.034)	(.015)	(.007)	(.02)	(.025)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: IV										
LGC Statutory Allocations	0.310***	0.127**	0.178***	0.043	0.164***	0.242***	0.055**	-0.010	0.114**	0.161***
	(0.099)	(0.052)	(0.056)	(0.035)	(0.055)	(0.082)	(0.026)	(0.015)	(0.045)	(0.062)
Elected × LGC Statutory Allocations	-0.224**	-0.114**	-0.107**	-0.038	-0.153***	-0.183**	-0.048*	0.023	-0.112**	-0.117**
	(0.088)	(0.049)	(0.053)	(0.039)	(0.053)	(0.077)	(0.025)	(0.015)	(0.044)	(0.058)
Joint Test:										
Allocations + Elected x Allocations = 0	.086	.013	.071**	.006	.011	.059	.007	.013	.002	.044
	(.061)	(.026)	(.031)	(.037)	(.032)	(.041)	(.019)	(.01)	(.022)	(.029)
Kleibergen-Paap weak IV	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: Table presents regression results capturing the impact of revenue shocks on conflict incidence during periods when LGAs are elected or appointed. All dependent variables are binary indicators capturing whether an event occurred in an LGA. All regressions control for state by time fixed effects and local government area (LGA) by elected status fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable is the monthly revenue allocation to a local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Resource rents, elected (vs appointed) local governments and individual level victimization and participation in conflict

	Fear of political violence		Physically attacked		Engage in violence	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A:						
LGC Allocations 6 months prior to survey	0.330	0.342*	0.090	0.105*	0.046	0.067*
	(0.206)	(0.200)	(0.055)	(0.057)	(0.029)	(0.034)
Elected × LGC Allocations 6 months prior to survey	-0.138	-0.135	-0.087**	-0.099**	-0.031	-0.052*
	(0.117)	(0.118)	(0.044)	(0.046)	(0.024)	(0.028)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Panel B:						
LGC Allocations 12 months prior to survey	0.135*	0.141*	0.049*	0.059**	0.019	0.028*
	(0.082)	(0.080)	(0.026)	(0.027)	(0.014)	(0.016)
Elected × LGC Allocations 12 months prior to survey	-0.064	-0.063	-0.046**	-0.052**	-0.013	-0.022*
	(0.051)	(0.052)	(0.020)	(0.021)	(0.011)	(0.013)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Panel C:						
LGC Allocations 18 months prior to survey	0.102*	0.105**	0.036**	0.042**	0.013	0.019*
	(0.054)	(0.052)	(0.018)	(0.018)	(0.009)	(0.010)
Elected × LGC Allocations 18 months prior to survey	-0.049	-0.048	-0.032**	-0.036***	-0.009	-0.015*
	(0.034)	(0.034)	(0.013)	(0.014)	(0.007)	(0.009)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Respondent controls		X		X		X

Notes: Table presents regression results using individual level data from the Afrobaromter. All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variables in column (1)–(2) indicates how much a respondent personally fears to become a victim of political intimidation or violence; columns (3)–(4) indicates how often the respondent or someone in the respondent's family has been physically attacked in the past year; columns (5)–(6) indicates whether how often respondent has used force or violence for a political cause. Panel (A) uses the sum of monthly revenue allocations in the last 6 months, Panel (B) in the last 12 months, and Panel (C) in the last 18 months. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Inclusion of Ethnic Groups Through Elections and Conflict: Estimation of effect on conflict levels

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Level effect										
Elected	-0.007**	-0.004**	-0.006***	0.001	-0.004**	-0.009***	0.001	-0.001	-0.005***	-0.007***
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Observations	148428	148428	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.00566	.0087	.0137	.00519	.000936	.00509	.00862
Panel B: Ethnic alignment heterogenous effect										
Elected	-0.001	-0.003*	-0.002	0.005**	-0.004**	-0.005***	0.002	-0.001*	-0.004***	-0.004**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)
Elected x Above Median Non-aligned ethnic group sh.	-0.041**	-0.009	-0.027***	-0.017*	-0.008	-0.029***	-0.008	0.004*	-0.010	-0.024***
	(0.016)	(0.009)	(0.010)	(0.010)	(0.009)	(0.011)	(0.007)	(0.002)	(0.007)	(0.009)
Observations	127130	127130	127130	127130	127130	127130	127130	127130	127130	127130
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0243	.00934	.0115	.00491	.00836	.0135	.00515	.00106	.00485	.00857

Notes: Table presents regression results documenting that LGAs with elected local governments experience lower conflict levels and that this effect is driven by places that may have seen significant political exclusion during the periods in which LGAs were appointed. All dependent variables are binary indicators capturing whether an event occurred in an LGA. All regressions control for local government area (LGA) fixed effects and time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Inclusion of Ethnic Groups Through Elections and Conflict: Triple Difference-in-Differences with Allocated Rents

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Impact of allocations on conflict with appointed LGAs and and Exclusion										
LGC Statutory Allocations ×										
Above Median Non-aligned ethnic group sh.	0.382***	0.171***	0.261***	0.010	0.183***	0.353***	0.088***	-0.004	0.164***	0.249***
	(0.094)	(0.057)	(0.066)	(0.037)	(0.055)	(0.082)	(0.030)	(0.007)	(0.050)	(0.067)
Below Median Non-aligned ethnic group sh.	0.308***	0.132**	0.199***	0.004	0.137***	0.274***	0.074***	-0.001	0.120***	0.184***
	(0.090)	(0.053)	(0.061)	(0.034)	(0.051)	(0.078)	(0.027)	(0.007)	(0.046)	(0.062)
Joint Test:										
Above Median - Below Median = 0	.074***	.039***	.062***	.005	.047***	.078***	.014**	-.003	.044***	.066***
	(.022)	(.014)	(.016)	(.009)	(.015)	(.02)	(.006)	(.002)	(.014)	(.016)
Observations	45789	45789	45789	45789	45789	45789	45789	45789	45789	45789
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0303	.0117	.016	.00467	.0112	.02	.00524	.0012	.00795	.0133
Panel B: Impact of allocations with elected vs. appointed LGAs and differential exclusion										
LGC Statutory Allocations ×										
Elected x Above Median Non-aligned ethnic group sh.	0.172***	0.051*	0.100***	0.032	0.080***	0.096**	0.045**	0.009*	0.039**	0.060**
	(0.060)	(0.027)	(0.030)	(0.026)	(0.027)	(0.039)	(0.022)	(0.005)	(0.018)	(0.027)
Appointed x Above Median Non-aligned ethnic group sh.	0.331***	0.142***	0.221***	0.031	0.163***	0.278***	0.059**	0.004	0.131***	0.196***
	(0.072)	(0.040)	(0.046)	(0.026)	(0.040)	(0.058)	(0.025)	(0.005)	(0.034)	(0.046)
Elected x Below Median Non-aligned ethnic group sh.	0.192***	0.042	0.100***	0.067**	0.069***	0.079*	0.051*	0.011	0.027	0.044
	(0.062)	(0.029)	(0.032)	(0.030)	(0.022)	(0.041)	(0.027)	(0.008)	(0.017)	(0.031)
Appointed x Below Median Non-aligned ethnic group sh.	0.182***	0.067**	0.104***	0.028	0.073***	0.132***	0.027	0.010*	0.051**	0.080**
	(0.063)	(0.030)	(0.035)	(0.025)	(0.028)	(0.046)	(0.022)	(0.005)	(0.021)	(0.033)
Joint Test:										
Elected Above Median - Appointed Above Median = 0	-.159***	-.09***	-.121***	.001	-.082***	-.182***	-.015	.005	-.092***	-.136***
	(.044)	(.03)	(.032)	(.014)	(.03)	(.04)	(.014)	(.004)	(.028)	(.032)
Observations	127130	127130	127130	127130	127130	127130	127130	127130	127130	127130
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0243	.00934	.0115	.00491	.00836	.0135	.00515	.00106	.00485	.00857

Notes: Table presents regression results documenting that the impact of revenue shocks driving conflict is most pronounced in periods and places were LGAs are appointed and where there may be significant share of population excluded (Panel A). Panel B documents that these places are seeing the most drastic weakening of the revenue shocks and conflict relationship. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. *LGC Allocations* captures the monthly revenue allocation to a local government council. All dependent variables are binary indicators capturing whether an event occurred in an LGA. All regressions control for local government area (LGA) by election status fixed effects and time fixed effects. Panel A focuses on the the sample with appointed local governments, while Panel B studies the full sample. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Individual Level Perception of Local Governance

	Approval of LGC Council		LGC Councillors corrupt		Trust in LGC	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.338***	-0.337***	0.397***	0.384**	-0.257**	-0.238*
	(0.122)	(0.124)	(0.150)	(0.151)	(0.125)	(0.143)
Elected × LGC Allocations 6 months prior to survey	0.233**	0.208**	-0.203*	-0.188*	0.197**	0.170*
	(0.102)	(0.097)	(0.104)	(0.104)	(0.085)	(0.088)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.165***	-0.165***	0.174***	0.168**	-0.108*	-0.098
	(0.059)	(0.060)	(0.067)	(0.068)	(0.056)	(0.063)
Elected × LGC Allocations 12 months prior to survey	0.114**	0.103**	-0.094**	-0.088*	0.084**	0.071*
	(0.047)	(0.045)	(0.047)	(0.047)	(0.039)	(0.039)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.110***	-0.110***	0.120***	0.117***	-0.075**	-0.066
	(0.040)	(0.041)	(0.044)	(0.044)	(0.037)	(0.041)
Elected × LGC Allocations 18 months prior to survey	0.076**	0.068**	-0.065**	-0.061**	0.057**	0.047*
	(0.031)	(0.030)	(0.031)	(0.031)	(0.026)	(0.026)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the local government councillor (4-point Likert scale); in columns (3)–(4) it captures how many of the local councillors a respondent thinks are involved in corruption; columns (5)–(6) indicates how much a respondent trusts the local government council (4-point Likert scale). Panel (A) uses the sum of monthly revenue allocations in the last 6 months, Panel (B) in the last 12 months, and Panel (C) in the last 18 months. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix to "Cohesive Institutions and Political Violence"

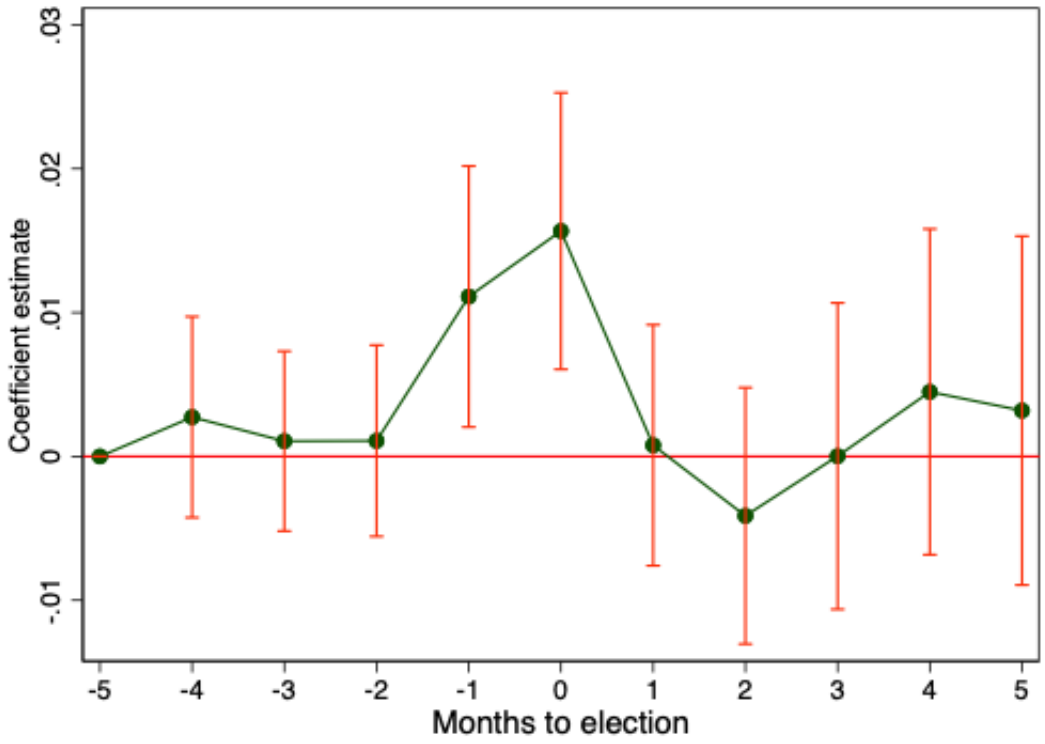
For Online Publication

Thiemo Fetzer Stephan Kyburz

July 9, 2021

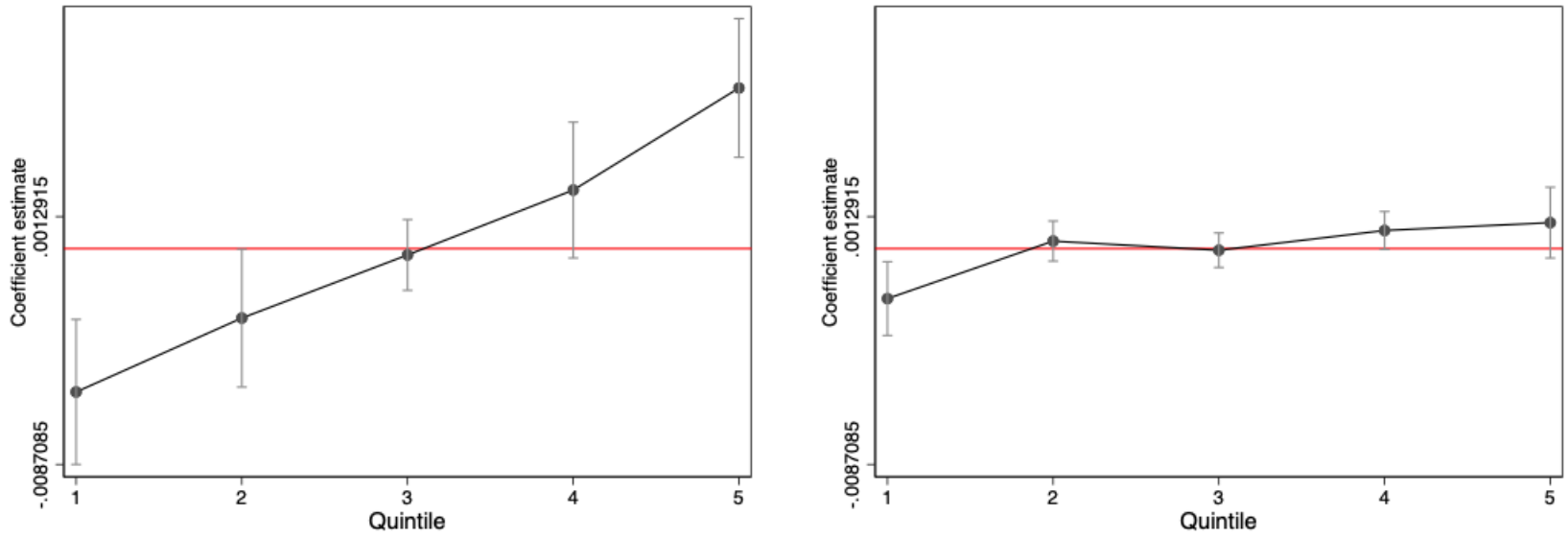
A Additional Figures and Tables

Figure A1: Conflict around election months



Notes: The figure presents estimated coefficients from a regression with the left hand side being a dummy variable indicating whether there was any conflict event in an LGA and month. The regression removes LGA fixed effects and time fixed effects prior and then regresses the residualized dependent variable on a set of dummies capturing the time to the election date. Standard errors are clustered at the LGA level and 10% confidence bands are indicated.

Figure A2: Conventional test for non-linearities



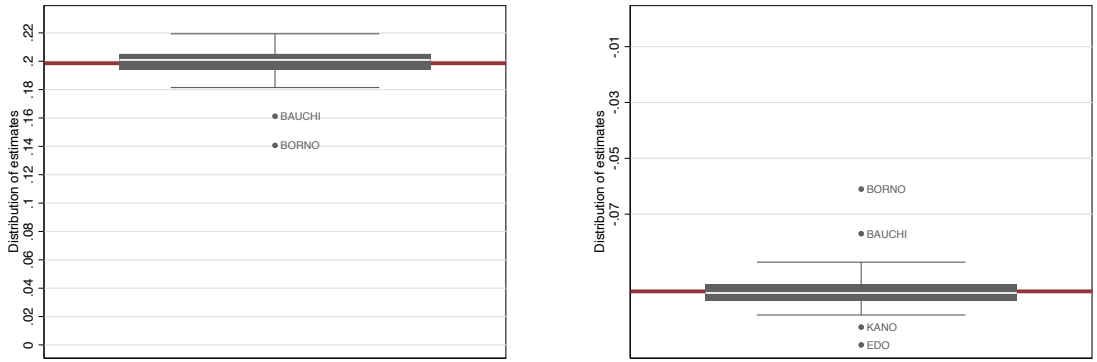
(a): Appointed Local Council

(b): Elected Local Council

Notes: The figures are constructed by demeaning the conflict outcome as well as the Gross Statutory Allocations by the location and time fixed effects, sub-setting the sample into two parts: one with elected and one with appointed local governments. The residuals of the allocations are subdivided into quintiles and we then estimate a simple specification using the quintiles as categorical right hand side measures. The resulting point estimates per quintile are plotted out. The figure displays the effect of LGC Gross Statutory Allocations per month on civil conflict by quintile of the shock without (left) and with (right) elected LGC. 90% confidence intervals obtained from clustering standard errors two way by time and state are indicated.

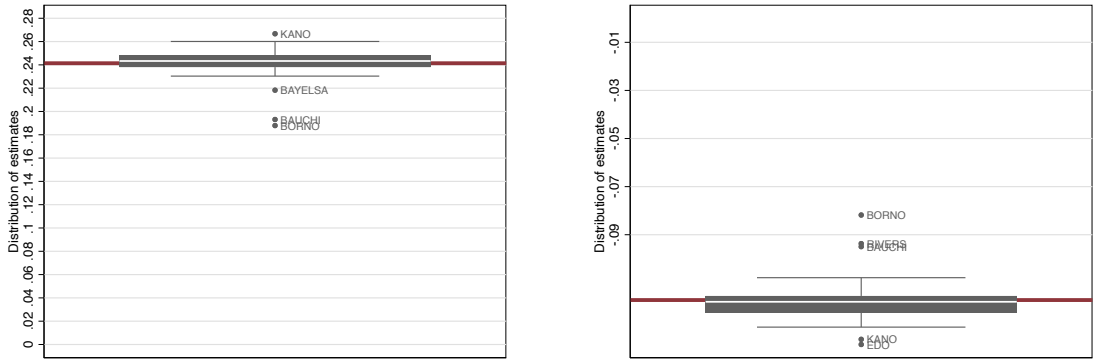
Figure A3: Leave-one-out validation: Dropping each state in turn

Panel A: Reduced form



Main effect | Interaction effect

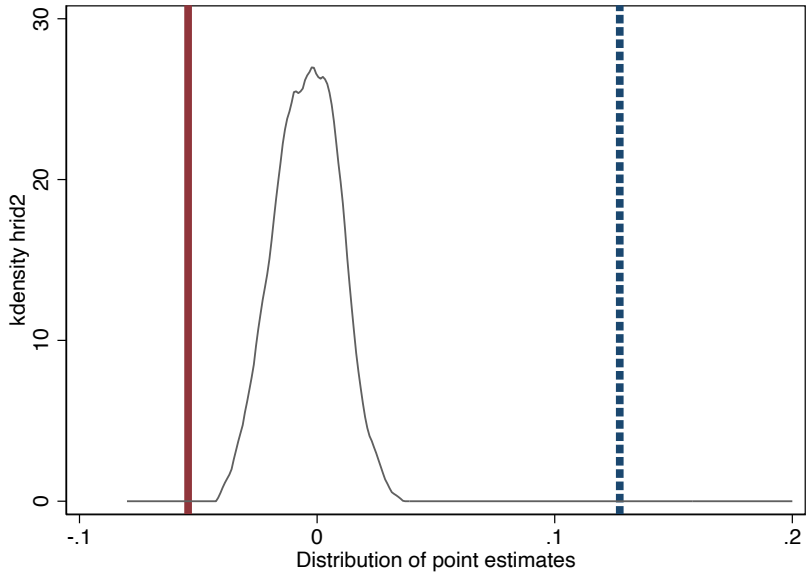
Panel B: Instrumental variables regression



Main effect | Interaction effect

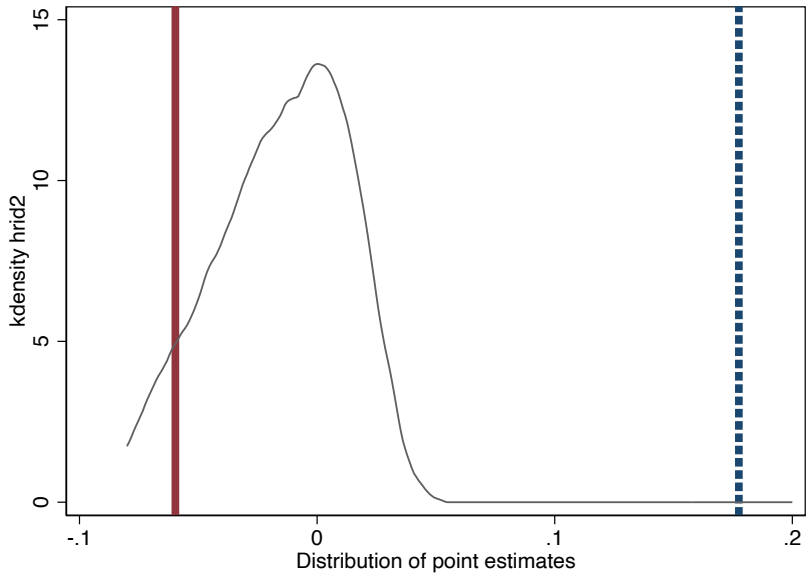
Notes: The figure presents results from a leave-one-out exercise. We estimate the main regression including state-by-time and district fixed effects but drop all data pertaining to each of the 37 individual states in turn. The boxplots provide the distribution of the point estimates that are obtained for both the reduced form as well as the instrumental variable estimation.

Figure A4: Permutation test on gross statutory allocations and election status



Notes: Permutation test on the interaction effect between gross statutory allocations and the elected status dummy. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the LGA level. Each model is estimated including state by time and LGA fixed effects. The dashed blue line represents the main effect that is estimated on the LGA Allocations variable, while the red vertical line indicates the estimate that is obtained on the Elected x LGA Allocations interaction with the true data. The kernel density plots the distribution of the point estimates for the reshuffled Elected x LGA Allocations interaction variable. It is clear that we can safely reject the null hypothesis with a p-value of less than 0.001.

Figure A5: Permutation test on election status dummy across 37 states



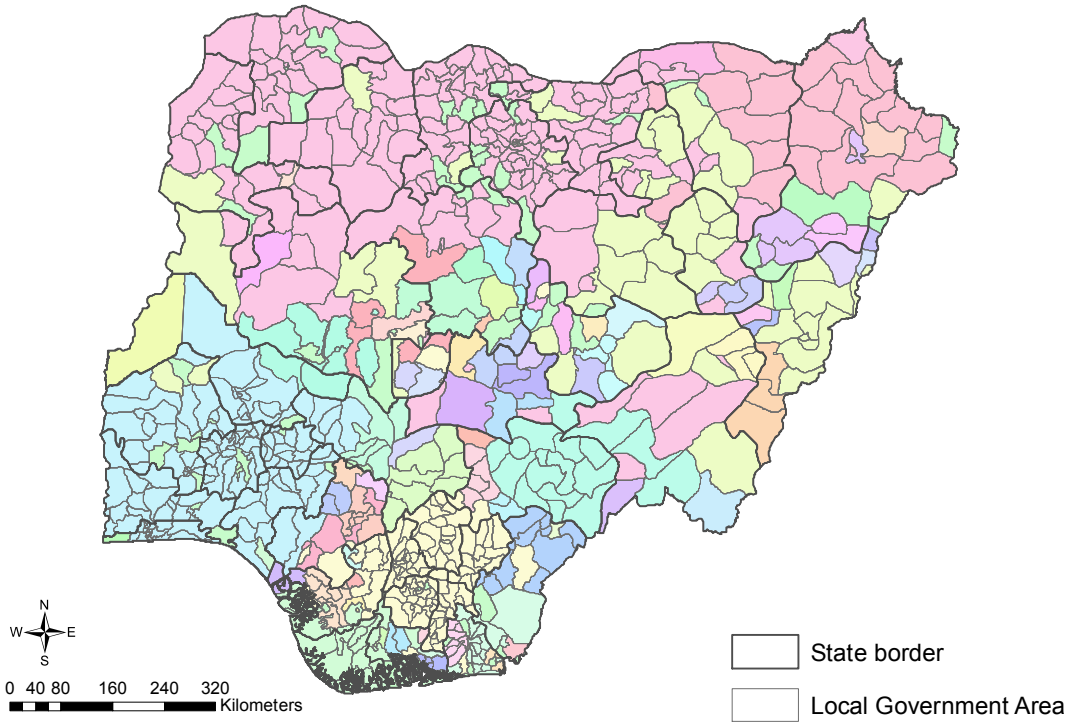
Notes: Permutation test after permuting the election status dummy across the 37 states, thus ignoring part of the local variation. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the state level. Each model is estimated including time and LGA fixed effects. The dashed blue line represents the main effect that is estimated on the LGA Allocations variable, while the red vertical line indicates the estimate that is obtained on the Elected x LGA Allocations interaction with the true data. The kernel density plots the distribution of the point estimates for the reshuffled Elected x LGA Allocations interaction variable. We can reject the null hypothesis of no effect with a p-value of 0.05.

Table A1: Revenue Allocation Formula

Variable	Mean	Std. Dev.
Equality	0.138	0
Population	0.104	0.058
Internal Revenue Generation effort	0.009	0.004
Landmass	0.017	0.021
Terrain	0.017	0
Health - Hospital Beds	0.01	0.005
Education - Primary enrollment	0.014	0.008
Rain - Water supply spread	0.005	0.006
Rain - Rainfall share	0.005	0
Total index	0.345	0.068
N	774	

Notes: Mean and Standard deviation of the different sub-indices that feed into the overall index weight used to allocate revenues to local government areas (revenue allocation formula of 2006). *Source*: Federation Account Allocation Committee (FAAC).

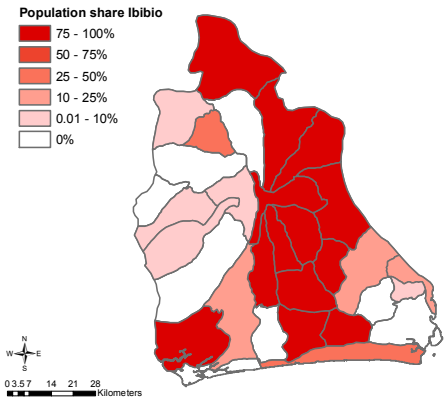
Figure A6: Distribution of Ethnic Groups across Nigeria



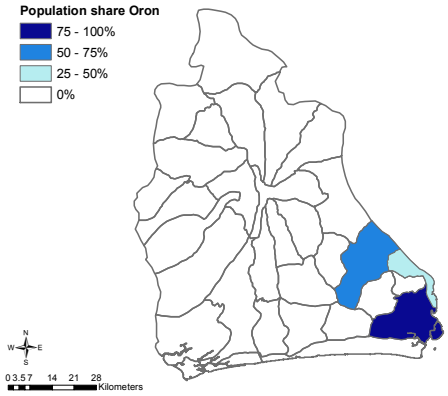
Notes: The map shows the distribution of ethnic groups across Nigeria. For each local government area the largest ethnic group is displayed in a different colour. The largest groups are the Yoruba in light blue (South-West), the Hausa-Fulani in pink (North), and the Igbo/Ibo in yellow (South-East) *Sources*: own calculations based on ethnic information in the Demographic Health Surveys. Administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/)

Figure A7: Population Shares of various ethnic groups in Akwa Ibom and Taraba states

Panel A: **Akwa Ibom State**

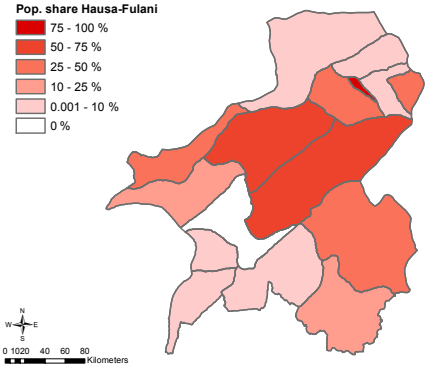


(a) Ibibio

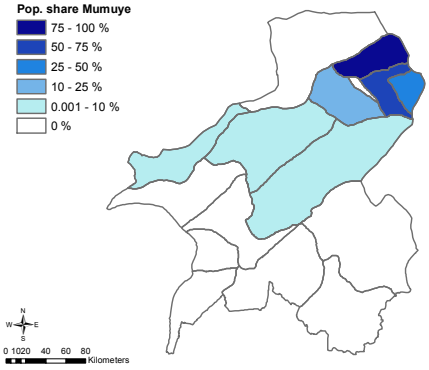


(b) Oron

Panel B: **Taraba State**



(a) Hausa-Fulani



(b) Mumuye

Notes: *Panel A* presents population shares for the (a) Ibibio and (b) Oron ethnic groups across local government areas in Akwa Ibom State. *Panel B* presents population shares for the (a) Hausa-Fulani and (b) Mumuye ethnic groups across local government areas in Taraba State. *Sources*: Population shares of ethnic groups across local government areas are calculated based on respondents' information on ethnicity and language in 5 Demographic Health Surveys (1990, 2003, 2008, 2010, 2013). Administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/).

Table A2: Within- and between LGA variation in different types of FAAC Allocations

Variable		Mean	Std. Dev.	Observations
Total Allocations	overall	0.305	0.243	N = 140868
	between		0.074	n = 774
	within		0.231	T = 182
Statutory Allocations	overall	0.206	0.122	N = 140868
	between		0.040	n = 774
	within		0.115	T = 182
Extraordinary Allocations	overall	0.056	0.131	N = 140868
	between		0.011	n = 774
	within		0.131	T = 182

Notes: The table presents a decomposition of the variation in the Federation Account Allocation Committee (FAAC) allocations within- and between LGA's. Statutory Allocations are calculated based on a benchmark oil price defined at the beginning of each year. Extraordinary Allocations are additional revenue transfers from the Excess Crude Account (ECA) based on the same allocation formula defined by the FAAC. These allocations are subject to idiosyncratic political decisions. *Source*: information on monthly allocations is published by the FAAC.

Table A3: Conflict in Oil-Producing States and Oil Fields

		Type of Event			Groups involved				Between pol militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol Militia	(7) Comm militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Oil producing state										
LGC Statutory Allocations	0.255***	0.142***	0.147**	0.018	0.143***	0.220***	0.070**	-0.004	0.119**	0.139**
	(0.088)	(0.054)	(0.056)	(0.038)	(0.053)	(0.073)	(0.029)	(0.004)	(0.048)	(0.064)
LGA is in Oil Producing State × LGC Statutory Allocations	-0.118	-0.174*	0.043	-0.007	-0.162	-0.140	-0.035	-0.042	-0.134	-0.016
	(0.178)	(0.095)	(0.095)	(0.092)	(0.102)	(0.125)	(0.042)	(0.045)	(0.083)	(0.088)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127
Panel B: LGA with Oil field										
LGC Statutory Allocations	0.236***	0.116**	0.154***	0.016	0.118**	0.200***	0.065**	-0.009	0.099**	0.137**
	(0.077)	(0.048)	(0.051)	(0.034)	(0.046)	(0.063)	(0.027)	(0.007)	(0.042)	(0.055)
LGA has Oil Field × LGC Statutory Allocations	0.040	-0.002	-0.006	0.037	0.024	-0.013	-0.012	-0.013	0.000	-0.014
	(0.055)	(0.029)	(0.030)	(0.034)	(0.026)	(0.037)	(0.028)	(0.008)	(0.017)	(0.024)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127

Notes: Table presents regression results exploring whether LGAs with oil production activity exhibit a different relationship between revenue shocks and conflict. All regressions control for local government area (LGA) by elected status fixed effects and state by time fixed effects. All dependent variables are binary indicators capturing whether an event occurred in an LGA. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. In Panel (A) the monthly statutory allocation are interacted with a dummy variable indicating whether a LGA is in a state that has any oil-producing facilities; in Panel (B) it is interacted with a dummy variable indicating whether a LGA has any oil field. Standard errors in parentheses are clustered twoway by LGA and time level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Decomposition of Allocations by Type and Oil Price used

	Overall Allocations			Statutory allocations			Extra allocations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Brent Crude Oil Price									
Total index × brent	18.497***	18.496***	18.494***	8.709***	8.709***	8.706***	5.068***	5.068***	5.070***
	(2.567)	(1.861)	(1.963)	(0.479)	(0.465)	(0.397)	(0.991)	(0.991)	(1.175)
LGC FE		X	X		X	X		X	X
Time FE			X			X			X
R2	.693	.712	.972	.828	.833	.987	.203	.204	.967
Observations	140784	140784	140784	140784	140784	140784	140784	140784	140784
Number of LGCs	774	774	774	774	774	774	774	774	774
Mean of DV	.305	.305	.305	.206	.206	.206	.0564	.0564	.0564
Panel B: NG Oil production									
Total index × Monthly Nigerian crude production	1.209***	1.209***	1.209***	0.759***	0.759***	0.759***	0.141	0.141	0.141
	(0.392)	(0.388)	(0.357)	(0.177)	(0.178)	(0.148)	(0.202)	(0.202)	(0.194)
LGC FE		X	X		X	X		X	X
Time FE			X			X			X
R2	.132	.151	.943	.228	.233	.964	.00875	.00917	.959
Observations	140784	140784	140784	140784	140784	140784	140784	140784	140784
Number of LGCs	774	774	774	774	774	774	774	774	774
Mean of DV	.305	.305	.305	.206	.206	.206	.0564	.0564	.0564

Notes: Table presents regression results representing a decomposition of the allocation variable using different sets of fixed effects across columns. The dependent variable in columns (1)–(3) is the Overall Allocation determined by the horizontal allocation formula (index) for each local government council; in columns (4)–(6) the Statutory Allocations calculated based on a benchmark oil price set at the beginning of each year; in columns (7)–(9) the Extraordinary Allocations that are additional revenue transfers from the Excess Crude Account (ECA). The explanatory variable in Panel (A) is an interaction between the total index weight in the allocation formula times the monthly Brent Crude Oil price; in Panel (B) it is an interaction between the total index weight times the monthly Nigerian crude oil production. Standard errors in parentheses are adjusted for two way clustering by time and state-governor with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Robustness: Removing election related violence from estimating sample

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Removing 1 month window around election										
LGC Statutory Allocations	0.217***	0.111**	0.150***	0.012	0.112***	0.189***	0.062**	-0.014	0.096**	0.141***
	(0.073)	(0.044)	(0.049)	(0.031)	(0.043)	(0.060)	(0.025)	(0.009)	(0.039)	(0.052)
Elected × LGC Statutory Allocations	-0.134*	-0.086*	-0.090*	-0.002	-0.080*	-0.134**	-0.052**	0.025***	-0.081**	-0.108**
	(0.073)	(0.045)	(0.049)	(0.042)	(0.044)	(0.060)	(0.023)	(0.009)	(0.040)	(0.050)
Observations	134606	134606	134606	134606	134606	134606	134606	134606	134606	134606
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0236	.00888	.011	.00504	.00827	.0131	.00484	.000973	.00478	.00822
Panel B: Removing 3 month window around election										
LGC Statutory Allocations	0.237***	0.118**	0.165***	0.013	0.119**	0.204***	0.076***	-0.014	0.102**	0.149***
	(0.080)	(0.047)	(0.053)	(0.034)	(0.047)	(0.065)	(0.027)	(0.010)	(0.043)	(0.056)
Elected × LGC Statutory Allocations	-0.151*	-0.093*	-0.102*	-0.007	-0.080	-0.148**	-0.068***	0.026**	-0.081*	-0.117**
	(0.080)	(0.050)	(0.054)	(0.044)	(0.049)	(0.066)	(0.024)	(0.010)	(0.045)	(0.056)
Observations	126340	126340	126340	126340	126340	126340	126340	126340	126340	126340
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0237	.00894	.011	.00511	.00828	.0132	.00484	.000966	.0048	.00827
Panel C: Removing 6 month window around election										
LGC Statutory Allocations	0.287***	0.144***	0.192***	0.029	0.144***	0.243***	0.089***	-0.011	0.122**	0.166***
	(0.083)	(0.054)	(0.055)	(0.037)	(0.053)	(0.068)	(0.029)	(0.010)	(0.048)	(0.059)
Elected × LGC Statutory Allocations	-0.200**	-0.112*	-0.127**	-0.024	-0.087	-0.188***	-0.076***	0.025**	-0.097*	-0.136**
	(0.084)	(0.058)	(0.053)	(0.049)	(0.058)	(0.070)	(0.026)	(0.010)	(0.053)	(0.059)
Observations	112506	112506	112506	112506	112506	112506	112506	112506	112506	112506
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0237	.0089	.011	.00525	.00822	.0131	.00492	.000933	.00474	.00831

Notes: Table presents a robustness check removing data around the actual election to document that the changed relationship between resource shocks and conflicts in LGAs with elected governments is not confounding any level effects arising due to election related violence. All regressions control for local government area (LGA) by elected status and state by time fixed effects. All dependent variables are binary indicators capturing whether an event occurred in an LGA. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Panel (A) removes the month when a local council election is held from the sample; Panel (B) removes a three months window from the sample; Panel (C) removes a six months window from the sample. *LGC Statutory Allocations* the monthly revenue allocation to a local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Standard errors in parentheses are adjusted for two way clustering by time and state-governor with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Variance Decomposition of Local Democracy Dummy

	(1)	(2)	(3)	(4)
R-squared	.0817	.571	.67	.972
LGC FE	X	X	X	X
Time FE		X	X	
State Governor FE			X	
State x Time FE				X
Observations	148428	148428	145082	148428
Number of LGCs	774	774	774	774

Notes: Table presents a decomposition of the variation in the election status dummy variable after controlling for different levels of fixed effects.

Table A7: Residual Variation to Hold Local Elections: Allocations and Conflict

	Allocations					ACLED			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LGC Allocations	-0.006								0.046
	(0.018)								(0.078)
LGC Extra Allocations		-0.017							-0.050
		(0.023)							(0.086)
LGC Allocations (last 3 months)			-0.002						-0.004
			(0.005)						(0.006)
LGC Allocations (last 6 months)				-0.001					-0.000
				(0.003)					(0.005)
LGC Allocations (last 12 months)					-0.001				-0.002
					(0.002)				(0.004)
ACLED events (last 3 months)						-0.000			-0.001
						(0.001)			(0.001)
ACLED events (last 6 months)							-0.000		-0.000
							(0.000)		(0.001)
ACLED events (last 12 months)								-0.000	0.000
								(0.000)	(0.000)
R2	.967	.967	.967	.966	.966	.967	.967	.967	.966
Observations	140713	140713	138406	136099	131485	148428	148428	148428	131485

Notes: The table presents a series of regressions of the elected status indicator variable (*Elected*) on the different types of allocations for different periods prior to local elections, and conflict events prior to local elections. The residuals in the *Elected* variable are calculated after controlling for state by time fixed effects and local government (LGA) fixed effects. Column (9) presents the estimation with all relevant explanatory variables included. Standard errors in parentheses are adjusted for two way clustering by time and state-governor with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Residual Variation in Local Elections: Formula Inputs and Ethnicity

	Weather		Index and Geography					Demographics			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Temperature	-0.002										-0.005*
	(0.003)										(0.003)
Rainfall (annual avg)		-0.000									-0.000
		(0.000)									(0.000)
Total index			-5.905								63.527
			(19.725)								(121.180)
Population				-8.599							-75.004
				(24.536)							(131.132)
Landmass					-13.324						-39.040
					(74.721)						(163.646)
Rain - Water supply spread						-44.413					0.000
						(249.070)					(.)
LGA has Oil Field							0.002				0.008
							(0.003)				(0.006)
Non-aligned ethnic family								0.010			0.014
								(0.007)			(0.009)
Non-aligned ethnic group									0.007		0.002
									(0.007)		(0.008)
Share of LGC population non-aligned w. Gov. religion										-0.005	-0.009
										(0.008)	(0.008)
R2	.967	.967	.967	.967	.967	.967	.967	.966	.966	.967	.968
Observations	148428	148428	148428	148428	148428	148428	148428	131107	131107	126187	123947

Notes: The table presents a series of regressions of the elected status indicator variable (*Elected*) on two weather indicators in columns (1)–(2), temperature and annual rainfall, on the allocation index and its sub-indices in columns (3)–(6), on an LGA oil field indicator in column (7), and on three ethnic/religious alignment variables in columns (8)–(10), indicating what share of the population is aligned with the state governor's ethnicity and religion, respectively. Column (10) includes all covariates. The residuals in the *Elected* variable are calculated after controlling for state by time fixed effects and local government (LGA) fixed effects. Standard errors in parentheses are adjusted for two way clustering by time and state-governor with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Sensitivity of results to data where there may have been disruption to revenue sharing

	New LGA's	Emergency rule			Non-verified claims	All instances
		Plateau	Ekiti	Boko Haram		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Dropping State x Month's which may have been affected by FAAC disruption						
LGC Statutory Allocations	0.175***	0.170***	0.171***	0.123***	0.198***	0.146***
	(0.050)	(0.049)	(0.050)	(0.040)	(0.053)	(0.043)
Elected × LGC Statutory Allocations	-0.094***	-0.095***	-0.096***	-0.062**	-0.109***	-0.070***
	(0.035)	(0.034)	(0.034)	(0.025)	(0.037)	(0.026)
Observations	139560	140594	140601	139222	127439	126263
Number of LGCs	774	774	774	774	774	774
Mean of DV	.0132	.0133	.0133	.0119	.0132	.012
Panel B: Dropping State x Year's which may have been affected by FAAC disruption						
LGC Statutory Allocations	0.175***	0.170***	0.171***	0.108***	0.198***	0.130***
	(0.051)	(0.049)	(0.050)	(0.037)	(0.053)	(0.042)
Elected × LGC Statutory Allocations	-0.095***	-0.095***	-0.096***	-0.050**	-0.109***	-0.058**
	(0.035)	(0.034)	(0.034)	(0.023)	(0.037)	(0.025)
Observations	138577	140509	140329	138446	127439	122528
Number of LGCs	774	774	774	774	774	774
Mean of DV	.0132	.0133	.0133	.0113	.0132	.0113
Panel C: Dropping all data from all states which may have been affected by FAAC disruption						
LGC Statutory Allocations	0.197***	0.171***	0.174***	0.110***	0.353***	0.235***
	(0.058)	(0.050)	(0.050)	(0.040)	(0.093)	(0.073)
Elected × LGC Statutory Allocations	-0.096**	-0.100***	-0.099***	-0.063**	-0.201***	-0.132***
	(0.041)	(0.035)	(0.034)	(0.024)	(0.069)	(0.047)
Observations	121603	137619	137801	121239	59754	51018
Number of LGCs	669	757	758	667	329	281
Mean of DV	.0134	.013	.0134	.0116	.0169	.0142

Notes: Table presents a robustness check removing data from periods where there *may* have been some disruption to revenue sharing. In Panel A we drop all data for state and month pairs in which there is some indication that transfers may have been disrupted even if they only affected a select few individual LGAs within a state. In Panel B we drop all state and year pairs where we know that some LGA by months may have seen some disruption. In Panel C we drop all data for all states for which we ever noted some disruption. The different reasons for disruptions are indicated in the column head and further described in the text. Column (5) drops all data that was affected by disruption irrespective of the underlying reason for disruption. All regressions control for local government area (LGA) by elected status and state by time fixed effects. The dependent variable is a binary indicator measuring whether an LGA month had a violent event recorded in ACLED. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Robustness: Controlling for State-Governor Specific and Election Status specific LGA Fixed Effects

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: without elected LGCs										
LGC Statutory Allocations	0.170**	0.080*	0.134**	-0.013	0.046	0.172***	0.039	-0.007	0.053*	0.155***
	(0.075)	(0.041)	(0.056)	(0.044)	(0.040)	(0.056)	(0.033)	(0.016)	(0.032)	(0.053)
Observations	50021	50021	50021	50021	50021	50021	50021	50021	50021	50021
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0294	.0112	.0152	.0047	.0109	.0193	.00496	.0011	.00774	.0127
Panel B: with elected LGCs										
LGC Statutory Allocations	0.193***	0.067**	0.106***	0.046*	0.060**	0.113***	0.045*	0.005	0.035*	0.082***
	(0.059)	(0.029)	(0.037)	(0.026)	(0.027)	(0.039)	(0.026)	(0.008)	(0.020)	(0.031)
Elected $\times$ LGC Statutory Allocations	-0.046	-0.030*	-0.035*	0.010	-0.009	-0.068***	-0.003	-0.005	-0.021	-0.056***
	(0.031)	(0.016)	(0.018)	(0.019)	(0.017)	(0.020)	(0.013)	(0.005)	(0.013)	(0.016)
Observations	139537	139537	139537	139537	139537	139537	139537	139537	139537	139537
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0233	.00895	.011	.00471	.00808	.013	.00489	.000982	.00474	.00812

Notes: Table documents that results are similar when controlling for a separate set of district fixed effects for each state governor and for whether an LGA has an elected or appointed LGA. This amounts to estimating, on average, more than five different sets of LGA fixed effects and introduces a large number of irrelevant controls understandably inflating the variance. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Panel (A) presents estimation results for periods with an appointed local government council (LGC), and Panel (B) includes periods with an elected LGC. The main explanatory variable is the monthly allocation to a LGC. The variable *Elected* indicates whether a LGC is elected or appointed in a given month. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Dropping all data from states that may have been impacted by the Boko Haram insurgency: Resource rents and conflict – moderating effect of having an elected local government

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Dropping Yobe, Borno, Adamawa										
LGC Allocations	0.084***	0.022	0.041***	0.017	0.025*	0.067***	0.007	-0.002	0.018	0.044**
	(0.031)	(0.015)	(0.012)	(0.016)	(0.013)	(0.022)	(0.008)	(0.004)	(0.011)	(0.018)
Elected × LGC Allocations	-0.044*	-0.012	-0.014*	-0.004	-0.015	-0.047**	-0.005	0.005*	-0.022*	-0.027*
	(0.023)	(0.018)	(0.008)	(0.014)	(0.014)	(0.019)	(0.007)	(0.003)	(0.013)	(0.014)
Observations	128883	128883	128883	128883	128883	128883	128883	128883	128883	128883
Number of LGCs	709	709	709	709	709	709	709	709	709	709
Mean of DV	.0229	.00821	.0102	.00542	.00747	.0117	.00493	.00107	.00373	.00708
Panel B: Dropping Yobe, Borno, Adamawa, Niger and Plateau										
LGC Allocations	0.084***	0.022	0.040***	0.016	0.024*	0.068***	0.006	-0.002	0.019	0.043**
	(0.031)	(0.016)	(0.011)	(0.017)	(0.014)	(0.022)	(0.008)	(0.005)	(0.012)	(0.019)
Elected × LGC Allocations	-0.047**	-0.012	-0.013*	-0.006	-0.017	-0.051**	-0.005	0.006*	-0.025*	-0.026*
	(0.024)	(0.019)	(0.008)	(0.008)	(0.015)	(0.020)	(0.007)	(0.003)	(0.014)	(0.014)
Observations	121239	121239	121239	121239	121239	121239	121239	121239	121239	121239
Number of LGCs	667	667	667	667	667	667	667	667	667	667
Mean of DV	.0226	.008	.00974	.00552	.00734	.0116	.00428	.00112	.00372	.00695

Notes: Table presents regression results suggesting that the observed effects are robust to dropping data pertaining to states that may have been affected by the Boko Haram insurgency. All regressions control for local government area (LGA) by elected status and state by time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable is the monthly revenue allocation to a local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A12: LGA Extraordinary Allocations and Conflict

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Extra Allocations	0.077**	0.046*	0.026	0.029	0.030	0.074***	-0.009	-0.013*	0.025	0.042**
	(0.034)	(0.025)	(0.016)	(0.021)	(0.021)	(0.024)	(0.008)	(0.007)	(0.019)	(0.019)
Elected × LGC Extra Allocations	-0.038	-0.037	-0.014	0.000	-0.030	-0.061*	0.007	0.015**	-0.037	-0.028*
	(0.036)	(0.036)	(0.013)	(0.009)	(0.027)	(0.032)	(0.010)	(0.007)	(0.022)	(0.016)
Joint Test:										
Allocations + Elected x Allocations = 0	.039	.01	.012	.029	0	.013	-.002	.002	-.012	.014
	(.039)	(.022)	(.016)	(.019)	(.017)	(.023)	(.007)	(.005)	(.01)	(.013)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: IV										
LGC Extra Allocations	0.563**	0.231**	0.324**	0.079	0.299**	0.441**	0.100	-0.018	0.208**	0.293**
	(0.252)	(0.109)	(0.147)	(0.068)	(0.137)	(0.196)	(0.061)	(0.025)	(0.101)	(0.146)
Elected × LGC Extra Allocations	-0.421**	-0.208**	-0.208*	-0.069	-0.277**	-0.341**	-0.087	0.038	-0.201**	-0.220*
	(0.208)	(0.096)	(0.123)	(0.070)	(0.128)	(0.167)	(0.056)	(0.026)	(0.096)	(0.128)
Joint Test:										
Allocations + Elected x Allocations = 0	.142	.023	.116**	.01	.022	.099	.012	.02	.006	.073
	(.1)	(.041)	(.057)	(.058)	(.05)	(.069)	(.03)	(.018)	(.035)	(.047)
Kleibergen-Paap weak IV	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: Table focuses on the extraordinary revenue allocations as a shock measure contrasting with the automatically triggered statutory allocations studied in the main paper. All regressions control for local government area (LGA) by elected status fixed effects and state by time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Extra Allocations* indicates the extraordinary allocations to each local government council from the Excess Crude Account (ECA) on a monthly basis. Extraordinary allocations are based on idiosyncratic political decisions. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: Effect of Resource rents on civil conflict: Alternative conflict data

	ACLED			UCDP GED		GTD	
	(1) Events	(2) Fatalities	(3) Non Boko Haram	(4) Events	(5) Fatalities	(6) Events	(7) Fatalities
Panel A: Any conflict							
LGC Statutory Allocations	0.279***	0.206***	0.100***	0.166***	0.140***	0.159***	0.144***
	(0.061)	(0.045)	(0.027)	(0.046)	(0.039)	(0.042)	(0.040)
Elected × LGC Statutory Allocations	-0.063**	-0.060***	-0.030***	-0.071***	-0.069***	-0.073***	-0.068***
	(0.027)	(0.021)	(0.011)	(0.023)	(0.021)	(0.022)	(0.020)
Observations	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774
Mean of DV	.0239	.0121	.0106	.00703	.00465	.00767	.00671
Panel B: Levels							
LGC Statutory Allocations	0.642***	5.705***	0.122***	0.424**	3.444**	0.344***	4.509*
	(0.190)	(1.825)	(0.036)	(0.186)	(1.411)	(0.121)	(2.601)
Elected × LGC Statutory Allocations	-0.143	-3.017***	-0.044***	-0.224**	-2.257***	-0.186***	-3.160***
	(0.098)	(1.049)	(0.016)	(0.100)	(0.865)	(0.062)	(1.192)
Observations	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774
Mean of DV	.0405	.224	.0134	.0133	.0735	.0127	.189

Notes: Table documents that we find similar results when studying alternative conflict event data. The dependent variable in columns (1)–(3) is based on the ACLED data; in columns (4)–(5) on the Uppsala Conflict Data Program Geo-referenced Event Data, and in columns (6)–(7) on the Global Terrorism Database. All regressions control for time fixed effects and local government area (LGA) fixed effects. Columns (1), (4), and (6) indicate any conflict event; columns (2), (5), and (7) indicate the number of fatalities in conflict; column (3) only includes conflict events that are *not* associated with the Jihadist militant organization "Boko Haram" in northeastern Nigeria. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (A) reports results for any conflict event, and Panel (B) conflict levels. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: Effect of Resource rents on civil conflict: Different transformations of dependent variables

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Any conflict										
LGC Gross Statutory Allocations	0.061***	0.039***	0.063***	0.018*	0.058***	0.067***	0.019*	0.005	0.053***	0.050***
	(0.014)	(0.012)	(0.013)	(0.010)	(0.014)	(0.016)	(0.010)	(0.003)	(0.012)	(0.013)
Elected × LGC Gross Statutory Allocations	-0.022***	-0.008	-0.023***	0.007	-0.021***	-0.023***	0.004	-0.001	-0.022***	-0.024***
	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.006)	(0.001)	(0.005)	(0.006)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0341	.0599	.0889	.0415	.00728	.0366	.0614
Panel B: Levels										
LGC Gross Statutory Allocations	0.626***	0.174***	0.252***	0.071	0.218***	0.427***	0.079**	0.010	0.166***	0.227***
	(0.192)	(0.062)	(0.072)	(0.059)	(0.071)	(0.145)	(0.035)	(0.008)	(0.059)	(0.080)
Elected × LGC Gross Statutory Allocations	-0.130	-0.069**	-0.089***	0.048	-0.070**	-0.201***	0.011	-0.000	-0.084***	-0.106***
	(0.079)	(0.027)	(0.029)	(0.034)	(0.031)	(0.059)	(0.014)	(0.003)	(0.027)	(0.031)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.0968	.149	.262	.0875	.0145	.0868	.142
Panel C: log(Levels per capita)										
LGC Gross Statutory Allocations	0.121***	0.053***	0.082***	0.019	0.072***	0.102***	0.027**	0.005	0.059***	0.068***
	(0.026)	(0.015)	(0.017)	(0.013)	(0.016)	(0.024)	(0.013)	(0.004)	(0.013)	(0.018)
Elected × LGC Gross Statutory Allocations	-0.032***	-0.016**	-0.029***	0.011	-0.023***	-0.042***	0.003	-0.000	-0.026***	-0.032***
	(0.010)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.006)	(0.001)	(0.006)	(0.007)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	-.315	-.412	-.4	-.443	-.419	-.386	-.439	-.473	-.444	-.42
Panel C: Levels per capita										
LGC Gross Statutory Allocations	0.173	0.082**	0.079*	-0.019	0.078*	0.156*	0.034**	0.003	0.071*	0.076
	(0.108)	(0.039)	(0.044)	(0.024)	(0.047)	(0.093)	(0.016)	(0.004)	(0.040)	(0.049)
Elected × LGC Gross Statutory Allocations	-0.091*	-0.043**	-0.049**	0.013	-0.048**	-0.108***	0.002	0.001	-0.050***	-0.054***
	(0.048)	(0.019)	(0.019)	(0.015)	(0.021)	(0.041)	(0.007)	(0.002)	(0.019)	(0.020)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.31	.0952	.116	.0534	.0898	.166	.0529	.00816	.0563	.0892

Notes: Table presents regression results documenting that we find similar results when exploring different transformations of the dependent variable. To study the intensive margin the data is aggregated to the yearly level. All regressions control for local government area (LGA) by time fixed effects and. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Standard errors in parentheses are adjusted for clustering at the LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A15: Different temporal resolution of the data

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Annual										
LGC Gross Statutory Allocations	0.061***	0.039***	0.063***	0.018*	0.058***	0.067***	0.019*	0.005	0.053***	0.050***
	(0.014)	(0.012)	(0.013)	(0.010)	(0.014)	(0.016)	(0.010)	(0.003)	(0.012)	(0.013)
Elected × LGC Gross Statutory Allocations	-0.022***	-0.008	-0.023***	0.007	-0.021***	-0.023***	0.004	-0.001	-0.022***	-0.024***
	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.006)	(0.001)	(0.005)	(0.006)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0341	.0599	.0889	.0415	.00728	.0366	.0614
Panel B: Quarterly										
LGC Gross Statutory Allocations	0.091***	0.042**	0.079***	0.019	0.062***	0.093***	0.034**	0.003	0.051***	0.069***
	(0.032)	(0.019)	(0.021)	(0.021)	(0.022)	(0.028)	(0.013)	(0.005)	(0.018)	(0.024)
Elected × LGC Gross Statutory Allocations	-0.039	-0.020	-0.033**	-0.003	-0.036**	-0.041**	-0.021	0.005	-0.033**	-0.036**
	(0.025)	(0.017)	(0.017)	(0.018)	(0.016)	(0.020)	(0.013)	(0.004)	(0.015)	(0.018)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0566	.0236	.0287	.0133	.0218	.0327	.0134	.00251	.0127	.0212
Panel C: Monthly										
LGC Gross Statutory Allocations	0.160***	0.055**	0.099***	0.014	0.072**	0.136***	0.039**	0.003	0.059**	0.094**
	(0.053)	(0.028)	(0.034)	(0.026)	(0.029)	(0.044)	(0.016)	(0.006)	(0.025)	(0.038)
Elected × LGC Gross Statutory Allocations	-0.081**	-0.030	-0.044	-0.001	-0.037	-0.084**	-0.027*	0.006	-0.047**	-0.062**
	(0.041)	(0.025)	(0.027)	(0.023)	(0.024)	(0.033)	(0.016)	(0.004)	(0.021)	(0.028)
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.00566	.0087	.0137	.00519	.000936	.00509	.00862

Notes: Table presents results documenting that the results are robust to studying different temporal resolutions of the data. Panel A focuses on annual aggregation of the data; panel B focuses on quarterly while Panel C focuses on monthly data. All regressions control for time fixed effects and local government area (LGA) fixed effects. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (A) reports results for an annual resolution of the data, Panel (B) for a quarter yearly resolution, and Panel (C) for a monthly resolution. Standard errors in parentheses are adjusted for clustering at the LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A16: Effect of Resource rents on civil conflict: Alternative functional forms to account for count data

		Type of Event			Groups involved				Between pol militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol Militia	(7) Comm militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Allocations	0.853***	0.220***	0.343***	0.134**	0.266***	0.530***	0.111***	0.011	0.193***	0.290***
	(0.211)	(0.068)	(0.079)	(0.066)	(0.072)	(0.156)	(0.041)	(0.010)	(0.060)	(0.087)
Elected x LGC Allocations	-0.147*	-0.075***	-0.093***	0.043	-0.075**	-0.207***	0.010	-0.002	-0.086***	-0.108***
	(0.076)	(0.027)	(0.030)	(0.033)	(0.030)	(0.058)	(0.014)	(0.003)	(0.026)	(0.031)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.0968	.149	.262	.0875	.0145	.0868	.142
Panel B: Poisson										
LGC Allocations	0.430**	0.459	0.601**	0.153	0.312	0.568*	0.382	1.005**	0.459	0.597*
	(0.208)	(0.285)	(0.296)	(0.186)	(0.253)	(0.319)	(0.406)	(0.499)	(0.434)	(0.353)
Elected x LGC Allocations	-0.071	-0.129	-0.152	0.010	-0.129	-0.211**	0.119	0.105	-0.224	-0.218**
	(0.081)	(0.108)	(0.100)	(0.073)	(0.110)	(0.101)	(0.135)	(0.263)	(0.143)	(0.109)
Observations	8257	5498	6215	2726	4999	6452	4234	552	3578	5143
Number of LGCs	517	344	389	195	313	404	265	46	224	322
Mean of DV	.773	.344	.376	.439	.368	.501	.256	.324	.3	.342
Panel C: NB										
LGC Allocations	0.160**	0.176*	0.320***	0.263	0.229**	0.207**	0.116	0.629	0.260*	0.314***
	(0.066)	(0.095)	(0.097)	(0.173)	(0.103)	(0.086)	(0.117)	(0.506)	(0.141)	(0.119)
Elected x LGC Allocations	-0.062	-0.038	-0.102*	0.051	-0.115*	-0.089	0.043	0.009	-0.165*	-0.139**
	(0.043)	(0.064)	(0.058)	(0.082)	(0.066)	(0.054)	(0.087)	(0.256)	(0.088)	(0.066)
Observations	8257	5498	6215	3114	4999	6452	4234	736	3578	5143
Number of LGCs	517	344	389	195	313	404	265	46	224	322
Mean of DV	.773	.344	.376	.384	.368	.501	.256	.243	.3	.342

Notes: Table presents regression results documenting that the main results are robust to alternative functional forms. All regressions control for local government area (LGA) and time fixed effects fixed effects. The dependent variables throughout are the count number of events per LGA and year for the period covering 1999-2014. The dependent variable includes the count number of (1) violent conflict events defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (B) employs a Poisson estimation, and Panel (C) a negative-binomial estimation. Standard errors in parentheses are adjusted for clustering at the LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A17: Robustness: Controlling flexibly for formula inputs

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Population Weight Decile x Time FE										
LGC Statutory Allocations	0.096	0.117*	0.117*	-0.076*	0.097*	0.160**	0.022	-0.012	0.115**	0.134**
	(0.095)	(0.065)	(0.060)	(0.043)	(0.056)	(0.080)	(0.033)	(0.010)	(0.053)	(0.061)
Elected × LGC Statutory Allocations	-0.100	-0.086	-0.075	0.006	-0.090*	-0.131*	-0.031	0.030**	-0.094*	-0.116**
	(0.082)	(0.059)	(0.060)	(0.031)	(0.051)	(0.071)	(0.025)	(0.013)	(0.048)	(0.055)
Observations	140629	140629	140629	140629	140629	140629	140629	140629	140629	140629
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0238	.00906	.0112	.00504	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: Landmass Weight Decile x Time FE										
LGC Statutory Allocations	0.184***	0.079**	0.113***	0.019	0.098***	0.149***	0.044**	-0.014*	0.062**	0.118***
	(0.051)	(0.036)	(0.040)	(0.024)	(0.029)	(0.043)	(0.022)	(0.008)	(0.027)	(0.037)
Elected × LGC Statutory Allocations	-0.111**	-0.061	-0.065	-0.007	-0.064*	-0.100**	-0.042**	0.029**	-0.057*	-0.094**
	(0.056)	(0.041)	(0.042)	(0.027)	(0.033)	(0.046)	(0.019)	(0.012)	(0.031)	(0.038)
Observations	140629	140629	140629	140629	140629	140629	140629	140629	140629	140629
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0238	.00906	.0112	.00504	.0084	.0133	.00491	.000981	.00487	.00828
Panel C: Public Good Access Index Deciles x Time FE										
LGC Statutory Allocations	0.197***	0.109**	0.102**	0.018	0.111***	0.166***	0.052*	-0.014	0.089**	0.112**
	(0.069)	(0.049)	(0.048)	(0.025)	(0.038)	(0.060)	(0.026)	(0.009)	(0.036)	(0.047)
Elected × LGC Statutory Allocations	-0.125*	-0.083*	-0.050	-0.012	-0.080**	-0.112*	-0.044*	0.028**	-0.076**	-0.086*
	(0.070)	(0.048)	(0.049)	(0.028)	(0.039)	(0.058)	(0.023)	(0.011)	(0.037)	(0.045)
Observations	140629	140629	140629	140629	140629	140629	140629	140629	140629	140629
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0238	.00906	.0112	.00504	.0084	.0133	.00491	.000981	.00487	.00828
Panel D: Water supply spread Index Deciles x Time FE										
LGC Statutory Allocations	0.184***	0.079**	0.113***	0.019	0.098***	0.149***	0.044**	-0.014*	0.062**	0.118***
	(0.051)	(0.036)	(0.040)	(0.024)	(0.029)	(0.043)	(0.022)	(0.008)	(0.027)	(0.037)
Elected × LGC Statutory Allocations	-0.111**	-0.061	-0.065	-0.007	-0.064*	-0.100**	-0.042**	0.029**	-0.057*	-0.094**
	(0.056)	(0.041)	(0.042)	(0.027)	(0.033)	(0.046)	(0.019)	(0.012)	(0.031)	(0.038)
Observations	140629	140629	140629	140629	140629	140629	140629	140629	140629	140629
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0238	.00906	.0112	.00504	.0084	.0133	.00491	.000981	.00487	.00828
Panel E: Hospital beds Index Deciles x Time FE										
LGC Statutory Allocations	0.206***	0.114**	0.139***	0.007	0.118***	0.180***	0.055**	-0.010	0.095**	0.134**
	(0.071)	(0.054)	(0.051)	(0.022)	(0.044)	(0.064)	(0.025)	(0.007)	(0.043)	(0.051)
Elected × LGC Statutory Allocations	-0.131*	-0.080	-0.087*	-0.005	-0.084*	-0.128**	-0.045**	0.026**	-0.081*	-0.113**
	(0.067)	(0.052)	(0.051)	(0.023)	(0.043)	(0.061)	(0.021)	(0.010)	(0.041)	(0.049)
Observations	140629	140629	140629	140629	140629	140629	140629	140629	140629	140629
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0238	.00906	.0112	.00504	.0084	.0133	.00491	.000981	.00487	.00828

Notes: Table presents regression results documenting that the results are robust to flexibly controlling for different inputs into the revenue sharing formula by controlling for non-linear time effects in the deciles of the different weight subcomponents. All regressions control local government area (LGA) by elected status and state by time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panels (A)–(E) control flexibly for the various allocation formula sub-indices defined by the Federation Account Allocation Committee. Standard errors in parentheses are adjusted for two way clustering by LGA and time level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A18: Validation of measure of exclusion of ethnic groups

	Alignment with ethnic group of state governor			
	(1)	(2)	(3)	(4)
Panel A: Own ethnic group treated unfairly (dummy)				
Person not aligned with governor's ethnicity	0.046***	0.034**	0.042***	0.026*
	(0.012)	(0.014)	(0.013)	(0.015)
Observations	15980	15980	15978	15978
Number of LGCs	579	579	577	577
Mean of DV	.803	.803	.803	.803
Panel B: Own ethnic group treated unfairly				
Person not aligned with governor's ethnicity	0.117***	0.086***	0.085***	0.045
	(0.029)	(0.033)	(0.032)	(0.038)
Observations	15980	15980	15978	15978
Number of LGCs	579	579	577	577
Mean of DV	3.32	3.32	3.32	3.32
State FE	X	X		
LGA FE			X	X
Time FE		X		X

Notes: The explanatory variable measures whether a respondent perceives the own ethnic group treated unfairly on a 4-point likert scale (Panel A), or at least sometimes (Panel B) to be treated unfairly by the government. The dependent variable indicates whether a respondent is of the same ethnic group as the state governor. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A19: LGA Allocations and Grievances towards National Political Institutions

	Approval of MP		National MP's are corrupt		Trust in National Assembly	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.163	-0.161	0.067	0.040	-0.169	-0.162
	(0.117)	(0.112)	(0.135)	(0.135)	(0.118)	(0.128)
Elected × LGC Allocations 6 months prior to survey	0.044	0.042	0.115	0.128	0.033	0.034
	(0.100)	(0.095)	(0.101)	(0.101)	(0.087)	(0.090)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.080	-0.077	0.023	0.008	-0.081	-0.078
	(0.057)	(0.055)	(0.066)	(0.066)	(0.057)	(0.060)
Elected × LGC Allocations 12 months prior to survey	0.026	0.024	0.048	0.055	0.017	0.018
	(0.047)	(0.045)	(0.048)	(0.047)	(0.041)	(0.042)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.059	-0.055	0.020	0.011	-0.058	-0.055
	(0.038)	(0.036)	(0.046)	(0.045)	(0.040)	(0.041)
Elected × LGC Allocations 18 months prior to survey	0.021	0.019	0.027	0.031	0.015	0.015
	(0.031)	(0.029)	(0.032)	(0.032)	(0.028)	(0.029)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the Members of Parliament at the federal government level; in columns (3)–(4) it captures perception of corruption of Members of Parliament; columns (5)–(6) indicates how much a respondent trusts the National Assembly. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A20: LGA Allocations and Grievances towards State level Political institutions

	Approval State Governor		State Assembly corrupt		Trust State governor	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.660*	-0.235	1.613	1.393	-0.292	-0.316
	(0.400)	(0.373)	(1.600)	(1.549)	(0.271)	(0.303)
Elected × LGC Allocations 6 months prior to survey	0.120	-0.074	0.170	0.081	0.126	0.174
	(0.311)	(0.271)	(1.746)	(1.720)	(0.226)	(0.259)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.288	-0.090	-0.841	-0.678	-0.119	-0.130
	(0.190)	(0.176)	(2.328)	(2.526)	(0.123)	(0.139)
Elected × LGC Allocations 12 months prior to survey	0.044	-0.042	0.644	0.516	0.048	0.071
	(0.145)	(0.127)	(0.973)	(1.003)	(0.103)	(0.119)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.195	-0.073	1.447	1.202	-0.090	-0.097
	(0.122)	(0.111)	(1.008)	(0.983)	(0.080)	(0.089)
Elected × LGC Allocations 18 months prior to survey	0.027	-0.026	0.312	0.290	0.044	0.059
	(0.094)	(0.081)	(0.606)	(0.607)	(0.066)	(0.076)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the State Governor; in columns (3)–(4) it captures perception of corruption among members of the State assembly; columns (5)–(6) indicates how much a respondent trust the state governor. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A21: Continuous measure of non-aligned ethnic group share - Inclusion of Ethnic Groups Through Elections and Conflict: Estimation of effect on conflict levels

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Level effect										
Elected	-0.007**	-0.004**	-0.006***	0.001	-0.004**	-0.009***	0.001	-0.001	-0.005***	-0.007***
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Observations	148428	148428	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.00566	.0087	.0137	.00519	.000936	.00509	.00862
Panel B: Ethnic alignment heterogenous effect										
Elected	-0.007**	-0.004**	-0.006***	0.002	-0.005**	-0.009***	0.001	-0.001	-0.006***	-0.007***
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
Elected × Non-aligned ethnic group	-0.015***	-0.005*	-0.011***	-0.003**	-0.007**	-0.012***	-0.004**	0.002**	-0.006**	-0.011***
	(0.005)	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)	(0.002)	(0.001)	(0.003)	(0.003)
Non-aligned ethnic group	0.004	0.002	0.004	0.001	0.003	0.005	-0.001	-0.000	0.003	0.005
	(0.005)	(0.003)	(0.004)	(0.002)	(0.003)	(0.005)	(0.002)	(0.001)	(0.003)	(0.003)
Observations	131107	131107	131107	131107	131107	131107	131107	131107	131107	131107
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0257	.00959	.0121	.00551	.00864	.0141	.00542	.00103	.00507	.00901

Notes: All regressions control for local government area (LGA) fixed effects and time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A22: Continuous measure of non-aligned ethnic group share - Inclusion of Ethnic Groups Through Elections and Conflict: Triple Difference-in-Differences with Allocated Rents

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Appointed local governments										
LGC Statutory Allocations	0.336***	0.150***	0.222***	0.010	0.156***	0.310***	0.077***	-0.002	0.140***	0.214***
	(0.093)	(0.054)	(0.062)	(0.037)	(0.052)	(0.081)	(0.028)	(0.007)	(0.046)	(0.066)
Non-aligned ethnic group × LGC Statutory Allocations	0.138***	0.059**	0.118***	-0.003	0.083***	0.128***	0.033***	-0.006	0.071***	0.104***
	(0.041)	(0.024)	(0.030)	(0.018)	(0.025)	(0.035)	(0.012)	(0.004)	(0.023)	(0.028)
Observations	45789	45789	45789	45789	45789	45789	45789	45789	45789	45789
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0303	.0117	.016	.00467	.0112	.02	.00524	.0012	.00795	.0133
Panel B: including interaction terms										
LGC Statutory Allocations	0.263***	0.108***	0.168***	0.029	0.122***	0.213***	0.044*	0.007	0.095***	0.145***
	(0.068)	(0.035)	(0.040)	(0.024)	(0.033)	(0.053)	(0.024)	(0.005)	(0.027)	(0.040)
Elected × LGC Statutory Allocations	-0.076**	-0.058***	-0.064***	0.021	-0.044**	-0.119***	0.005	0.003	-0.059***	-0.088***
	(0.032)	(0.020)	(0.021)	(0.016)	(0.020)	(0.028)	(0.011)	(0.005)	(0.018)	(0.022)
Non-aligned ethnic group × LGC Statutory Allocations	0.149***	0.064**	0.126***	-0.003	0.088***	0.139***	0.036***	-0.006	0.076***	0.112***
	(0.041)	(0.025)	(0.031)	(0.018)	(0.025)	(0.036)	(0.012)	(0.004)	(0.024)	(0.029)
Elected × Non-aligned ethnic group × LGC Statutory Allocations	-0.174***	-0.060**	-0.122***	-0.035	-0.078***	-0.118***	-0.050***	0.005	-0.062***	-0.092***
	(0.047)	(0.028)	(0.032)	(0.024)	(0.028)	(0.036)	(0.017)	(0.006)	(0.024)	(0.029)
Observations	127130	127130	127130	127130	127130	127130	127130	127130	127130	127130
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0243	.00934	.0115	.00491	.00836	.0135	.00515	.00106	.00485	.00857

Notes: All regressions control for local government area (LGA) by election status fixed effects and time fixed effects. Panel A is estimated off the sample with appointed local governments and includes LGA fixed effects, while Panel B includes the periods with elected local governments and a separate set of LGA fixed effects for periods in which governments are elected. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. *LGC Allocations* captures the monthly revenue allocation to a local government council. Standard errors in parentheses are adjusted for two way clustering by LGA and time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

B Extended Discussion of Institutional Background and Context

In this appendix B, we provide further details on the institutional situation and relevant context related topics. First, we explain what the main characteristics of Nigerian fiscal federalism are and how local and state governments are mainly funded by oil revenues (section B.1). Relatedly, in section B.2 we describe incidences of withholding of revenue allocations and provide further documentation on the robustness of our results. Section B.3 provides further evidence and examples of the contest for institutionalized rents. In section B.4 we present a detailed case study of the Boko Haram sect and why it fits well with the framework of the logic of political violence (Besley and Persson, 2011). Finally, we describe some additional context on the local government elections (B.5).

B.1 Fiscal federalism, oil revenues and local government finance

Nigeria exhibits a system of fiscal federalism with rules defined in the Nigerian Constitution (Federal Republic of Nigeria, 1999). The largest part of tax revenues are paid into a centrally managed Consolidated Revenue Fund of the Federation, the Federation Account. This federation account is mostly alimented from tax revenue on oil and value-added tax (VAT). Oil tax revenues comprise a major part of overall tax revenues, and are fundamental for public finances at all government levels; e.g. in the year 2013, they amounted to 75% of budgetary revenues (World Bank, 2013). The centrally collected tax revenues are then allocated to the 3 tiers of government, the federal government, the states and the local government councils according to a specific allocation formula by the Federation Account Allocation Committee (FAAC) under the auspices of the Revenue Mobilisation Allocation and Fiscal Commission according to the Constitution of the Federal Republic of Nigeria (1999).[1]

Under the 1999 constitution, at least 13% percent of oil revenues must directly flow back to the oil-producing states to account for their status as the source of revenues. This rule is known as the derivation principle (Federal Republic of Nigeria, 1999).[2] Subse-

[1]The Revenue Mobilisation Allocation and Fiscal Commission is comprised of a chairman and one member from each state and the Federal Capital Territory, Abuja. The Federation Account Allocation Committee is constituted of the Federal Minister of Finance, representatives of each state (usually the states' commissioners of Finance and their accountants-general), and representatives from fiscal and monetary related federal agencies such as the Central Bank, and the Customs and Federal Inland Revenue Services (Maystadt and Salihu, 2015).

[2]The states benefiting from the derivation principle are Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers. Anambra recently also became an oil producing state, yet they haven't

quently, the collected tax revenues are divided by a vertical and horizontal allocation formula. The vertical allocation formula states that 52.68 percent of revenue allocations are disbursed to the federal government, 26.72 percent to the state governments and the FCT (Abuja), and 20.60 percent to the local governments. The share of revenues that accrues to the state and local government councils, is then further divided according to a horizontal allocation formula that makes allowance for geographic and socio-economic characteristics of the respective administrative unit. These geographic and socio-economic indicators of the formula are (i) equality 40%; (ii) population 30%; (iii) internal revenue generation Effort 10%; (iv) landmass and terrain 10%; (v) education 4%; (vi) health 3% (primary school enrolment); (vii) water supply 3% (rainfall).[3] Panel (A) in Figure 2 presents a map representing the revenue allocation index weight for each of the 774 local government areas. Table A1 presents descriptive statistics for the various demographic and socio-economic characteristics comprising the allocation index weights calculated for each local government by the FAAC. Population and landmass are by far the most important factors when it comes to explaining the cross sectional variation in the overall index. On the other hand, factors such as Equality, Terrain and Rainfall share do not vary across the country.

Data on monthly allocations and the index weights are published by the FAAC of the Federal Ministry of Finance. We assemble the monthly allocation data to a balanced panel including all 774 local government areas for the period June 1999 to July 2014.[4] The information on the monthly allocations is communicated by the Accountant-General of the Federation in Abuja each month.

Oil revenues that aliment the Federation Account depend both on the price of crude oil and the magnitude of oil production. We hence obtain data on the crude oil price from Thomson Reuters[5] and monthly oil product data from Nigerian National Petroleum Corporation. The relevant variable to drive the variation behind changes in monthly

benefited from the derivation principle during our study period.

[3]The landmass and terrain factor is further equally divided into one constant part for all local government areas according to terrain conditions in the state (50% of 10%), and a second part measuring the size of the landmass of each local government area (50% of 10%). The internal revenue generation effort is further divided into one part applying to each local government council in each state equally (75% of 10%), and one part depending on the individual revenue effort of each local government council (25% of 10%). The water supply factor is further equally divided into an equality part applying to all local government councils equally in each state (50% of 3%), and territorial spread of rainfall depending on each local government area's rainfall (50% of 3%).

[4]The data was available on www.faac.gov.ng in April 2015. The website is currently not online (August 2017).

[5]We use the Brent Crude Oil Price extracted from Thomson Reuters Datastream.

allocations to local government areas appears to be the oil price, and not the production quantity. Table A4 in the appendix highlights that the amount of variation in the monthly levels of oil production is significantly smaller compared to the variation in monthly oil prices. Monthly Nigerian crude oil production varies around a mean of 2.32 million barrels with a standard deviation of 0.17 million barrels, while monthly oil prices vary around a mean monthly price of USD 64.21 with a standard deviation of USD 34.97, suggesting that the bulk of the variation in allocations is due to price variation. This is relevant to the extent that prevailing world oil prices are unaffected by Nigerian oil production.

In our empirical analysis, we investigate whether oil producing states are affected differently by violence compared to non-oil states. We hence collect data on the location of oil and gas fields from the Nigerian National Petroleum Corporation (NNPC) across Nigeria. We construct a dummy that is equal to 1 in case a local government area is intersecting an oil field. This measure includes not only producing oil fields, but also fields that are under exploration. In total 63 local government areas do have an oil or gas field. Additionally, we also create an indicator variable to mark states as oil producing. As discussed in the paper, Appendix Table A3 demonstrates that violence in oil-producing areas – as in the rest of the country – appears to be driven by the statutory allocations to the local government councils.

Statutory and extraordinary allocations Federal allocations of oil revenues can be roughly divided into two categories of disbursements. *Statutory allocations* are calculated based on a benchmark price of oil determined at the beginning of each year and are regularly disbursed each month. *Extraordinary allocations* are disbursed irregularly and are based on idiosyncratic political decisions. Such augmented allocations originate from the *Excess Crude Account* (ECA). The ECA was established 2004 in order to collect resource revenues that accrue due to the difference between the yearly benchmark oil price and the actual market price. Its objective was to account for the volatility in crude oil prices to protect planned budgets (Central Bank of Nigeria, 2012). Essentially, it was set up as a "rainy day fund".[6]

The ECA was surrounded by controversies throughout its existence (Central Bank of Nigeria, 2012). It was subject to the whims of political leaders, which raised serious

[6]In 2010, Nigeria's National Economic Council approved the creation of a national sovereign wealth fund to replace the Excess Crude Account. The establishment of the Nigeria Sovereign Investment Authority was signed into law on 25 May, 2011 (Nigeria Sovereign Investment Authority, 2015). The wealth fund operates three separate funds, the Stabilisation Fund (SF), the Future Generations Fund (FGF), and the Nigeria Infrastructure Fund (NIF).

concerns about transparency and accountability. It was meant to de-link government expenditure from oil revenues in order to insulate the Nigerian economy from external shocks. Due to surging oil prices, the funds collected in the ECA increased almost fourfold from $ 5.1 billion to over $ 20 billion by November 2008. Due to budget deficits at all government level as a consequence of the financial crisis and falling oil prices, the ECA decreased to less than $ 4 billion in 2010. The augmentation payments to the three tiers of government from the ECA are rather unexpected as they are due to unexpected changes in oil prices.

A large part of accumulated funds was depleted in the year 2009, when in February the state governors asked for the sharing of $ 4 billion from the account. The newspaper *Leadership* reported that the Conference of Nigerian Political Parties (CNPP) to make public the actual use of $ 130 billion accruing to the ECA since 2000.

In the year 2009, there was a $ 2 billion stimulus package paid out to the three tiers of government. The federal government received $842, the 36 states received $ 799.648 million while the 774 local government councils got the balance of $ 358.4 million. The state with the largest amount paid out was Rivers with $ 108.7 million, while the state with the smallest amount received was Ebonyi with $ 10.4 million (*Daily Trust*, 19 October 2009). *Vanguard* (2 April, 2009) reports that President Yar Adua succumbed to the pressure of state governors to deplete the ECA. So it became a additional source of extra money for the three tiers of government.

Local government responsibilities According to the constitution (Federal Republic of Nigeria, 1999), economic planning and development is in joint responsibility of state and local government councils. The constitution instructs local governments to form an economic planning board. While the local governments appear to be a tier of government that are an executing body for the state governments, they have indeed substantial autonomy. Most important, they are responsible to provide primary education and primary health care services.[7] Local governments should build and maintain the physical infrastructure of primary health centres, payment of all staff salaries and ensuring the centres sufficient stock of medicines and other resources. With regard to education, local governments bear

[7] According to Khemani (2006), the real responsibility of providing education and health care services is indeed delegated to local governments, although the constitution puts the task in the joint responsibility of state and local governments. An informative account of how local government are de-facto responsible for providing education and health care services is given in (Albin-Lackey, 2007), in 5 case studies of local governments (Etche, Khana, Tai, Akuku/Toru, and Obio/Akpor). A World Bank report describes in an insightful way how local governments can outperform other local government areas if the local government council is active and willing to implement progressive policies (see World Bank, 2002, p. 46).

the responsibility to execute government education policies and to run primary schools on a daily basis (for further details see Albin-Lackey, 2007). Further responsibilities include such diverse tasks as the provision of adult and vocational education, and the development of agriculture and natural resources (other than the exploitation).[8] Overall, the local governments play a prominent role in providing public goods that are important in the citizens everyday life. The absence of a functioning local government may thus create grievances among the local population and lower its trust in institutions.

Local government finance management With the transition to democratic rule in 1999, the Nigerian fiscal system was decentralized rapidly. According to a World Bank report, the share of sub-national budget spending in the consolidated budget increased from 23% in 1999 to 46% in 2005 (World Bank, 2007). The sub-national budget expenditure already was almost four times higher in 2005 than in 1999 in real terms, while the expenditure at the local level in fact grew even faster than at the state level, so that sub-national budget systems have become more decentralized. This followed a stricter implementation of federal allocations than in the 1990s.

The bulk of gross revenues at local level originate from disbursements out of the federation account. Local governments can raise internally generated revenues as well. Their ability and the extent to which they do, however, is very limited. Overall they raised less than 5% of gross revenues through internally generated means in the period 2001–2005 (Eboh et al., 2006). This is not surprising as tax powers available to local governments are limited to minor subjects, such as property tax and market and trading licences.[9] As local governments hence heavily depend on the allocations of resource revenues from the Federation Account, which heavily fluctuate with global oil prices, their fiscal situation is highly volatile and unsustainable (World Bank, 2013).

Various reports and newspaper articles describe the mismanagement of public finances at the local level. Human Rights Watch (HRM, 2007) conducted a detailed analysis of local government finances in a number of local government areas in Rivers State, which apparently is a difficult task as local government councils treat the budgets and financial reports as closely guarded secrets. HRM specifically investigated how local finances are managed, focusing on expenditures for education and health care (Albin-Lackey, 2007).

[8] The local government council further makes recommendations to the State commission on economic planning on diverse issues such as the construction and maintenance of roads, streets, street lightings, drains, the provision and maintenance of public conveniences, sewage and refuse disposal, the control and regulation of shops, kiosks, restaurants, bakeries, and other places for the sale of food, and the licensing, regulation, and control of the sale of liquor (Federal Republic of Nigeria, 1999).

[9] A full list of tax powers is provided in Ekpo and Englama (2008).

By Rivers State law, the legislative body in each local government is to approve or vote down annual budgets presented by the chairperson of the LGC. Legislative councils are also entitled to review the end-of-year expenditure reports that are submitted by the chair. This check on the chairperson's handling of local budgets – although theoretically important – ended up being an opportunity for local councils members to ask for bribes, as a device for self-enrichment, in return for passing the budget. Many local councillors see the budget process as the best opportunity to claim their share of the allocated revenues. Once the councillors got their requested share of the pie, the chairmen are left free and unconstrained to spend the remaining allocations according to their preferences and not accounted in the budget process (Albin-Lackey, 2007).

Substantial revenues are declared in the local budget process for projects that are never properly implemented or are even non-existent. One local government chairman in Rivers State spent huge sums on e.g. a "demonstration fish pond" that was never operational and payment of more than 100 "functional committee/protocol officers" whose responsibilities were entirely unclear (Albin-Lackey, 2007). According to the newspaper *Daily Champion*, in Oshimili local government area, N 2 million were apparently spent on erosion control, yet there was no visible sign of such a project. Another example of very poor budget implementation is Warri South local government, where millions of Naira have been allocated to landscaping the chairman's house, construction/renovation of market stalls, the purchase of generator transformers, the provision of a solar water scheme, the construction of drains/culverts, the maintenance of parks and gardens, the construction of motor parks in selected towns, and the construction of television viewing centres. Yet, none of these projects were actually implemented.[10] These examples of the local public finance management provide both an insight into the variety of projects that are budgeted and the poor implementation in many cases. Although these are just examples, they represent larger inefficiencies of public finance management at the local level, as described in detail in (Albin-Lackey, 2007).

The failure to pay salaries, is another example of the poor public finance management at the local level (Albin-Lackey, 2007, p. 13). It is reported that in LGCs in Rivers State, salaries for public sector workers are routinely withheld while the funds that were set aside to pay them disappear. In other local governments, it is alleged that non-existent workers are on the payroll of local governments, which is another way for local politicians to siphon away public funds (Albin-Lackey, 2007, p. 34).

[10]These accounts of poor public finance management can be in found in the newspaper *The Daily Champion*, 22 June, 2007.

While citizens at the local level observe that local government council members enrich themselves, the provision of health care and education is miserable. According to a civil society organization in Port Harcourt[11], the local government chairs have no objectives other than getting paid to do nothing. Except for paying salaries, the local governments have ceased to perform any duties assigned to them. Some local government chairmen apparently do not even reside in their local governments, but only come back to pay out salaries and to distribute the remainder of the monthly allocations as patronage. While there are few positive accounts of local finance management, the overall assessment is usually rather devastating. An official of the Federal Economic and Financial Crimes Commission stated: "To say that [local government] everywhere is a disaster is not a fair assessment, but it is not far from the truth." (Albin-Lackey, 2007, p.25). A positive example in the use of increased local public finances is Tai LGC. According to HRM, Tai LGC used the allocated revenues to implement numerous projects such as renovating schools, building new classroom blocks, and constructed 7 new health care centres. The Tai LGC compiled a list of all projects undertaken and also made it public. Many of the projects were undertaken at the request of the communities within the local government (Albin-Lackey, 2007, p.27).

It becomes clear that local governments public finance management is poor, yet differs in capacity across LGAs. Because of the high volatility in oil prices, the flow of allocations into local accounts is both hard to predict and opens the floodgates to misappropriate public funds. This brings us back to the main variation we use in our empirical framework. As mentioned above and shown in Table A2, the within-LGA variation in allocations is considerable and driven by global oil prices (see Table A4). This high volatility makes the processes in public finance management, such as paying public servants' salaries or providing public goods, difficult and non-transparent and calls for strong political factions to appropriate its share, using force if necessary.

B.2 Withholding of local government allocations

The withholding of revenue allocations by the federal or state governments was reported related to the creation of new local government areas and emergency rules. This could potentially affect our empirical results. We have collected additional data to detect episodes when allocations were alleged to have been withheld. Furthermore, we also discuss and identify periods when state governments might have deducted parts of the allocations to fund joint state-local government projects. The provided additional empiri-

[11]Port Harcourt is the capital and largest city in Rivers State.

cal exercises demonstrate that neither the withholding of allocations nor deductions alter our findings.

Legally there is very limited basis for the government to withhold allocations as the sharing of revenues is set in the country's 1999 constitution. Every episode of alleged withholding allocations led to strong altercations in the National Assembly over its constitutionality, and both local and state governments were fighting the withholding of allocations at the Nigerian Supreme Court, which tried to enforce the constitution and typically sided with the local councils.

Withholding does not imply forfeit of legal claims Our understanding is that the temporary withholding, however, does not imply that the LGAs have no legal claim to the allocations, but rather, it simply implied a defer of the cash flow implying that the contest logic should still hold as the value of the liabilities remains. This is an important conceptual point as direct or indirect control over the potential asset is what matters.

Nevertheless, there have been a few cases in which, during narrow time periods, the allocations may have been temporarily withheld. We further elaborate how we identified these cases through a thorough media content analysis and we show that the results presented here are robust. We have identified two main cases in which allocations to local governments *may have been temporarily withheld*:

Creation of new local government areas Due to the structure of the revenue sharing formula, which implies a minimum fixed share of revenues for each LGA, there exist incentives for new LGAs to be created. There have been instances in which LGAs attempted to split or states attempted to create new LGAs. While this is legally possible, it requires approval of the federal government (which de jure never happened since 1999). Ebonyi state was the first to create 21 new local governments in April 2002. While the Abakaliki High Court and the National Assembly rejected the new local governments as illegal, funds were withheld only in April 2002. The state government backtracked and funds were released.[12]

Two years later, in April 2004, the allocations to the states of Ebonyi, Lagos, Nasarawa, Niger and Katsina were withheld by President Obasanjo also upon the creation of new local government areas in these states. Pressure mounted on these states to dissolve the new LGAs, and all of them backtracked few months later in July 2004, except for Lagos. Lagos Governor Tinubu did not abandon the idea of following through with the creation of the new local government areas. The conflict between President Obasanjo

[12] All newspaper articles and sources are available on request.

and Governor Tinubu turned into a 3-year long legal and political battle between the federal and the state government. In December 2004, the Supreme Court ruled that it was illegal for the federal government to withhold any allocations accruing to the local governments. However, the court also decided that the newly created local governments would only become operational once they were confirmed by the National Assembly and subsequently listed in the constitution. Despite the ruling and the order to immediately release the funds, the situation remained unresolved. The newly created LGAs were renamed as "council development areas" in 2005, and consequently around 20 billion Naira were released. Yet, only the general election in 2007 that resulted in both Tinubu and Obasanjo leaving office allowed to fully resolve the dispute, and the funds (around 10 billion Naira) were released by the incoming President Yar'Adua.

Emergency rule The second important case, that led to the withholding of allocations, was the declaration of an emergency rule either in a state or certain local government areas in some instances. There were a number of emergency rules declared, yet not always had allocations been withheld.

The insurgency of the Boko Haram sect led the federal government to declare state of emergencies during the years 2011–2014. A state of emergency was declared in a *subset of LGA's* across the states of Borno, Niger, Plateau, and Yobe in January 2012 (declared on 31 December 2011). The state of emergency in these LGAs lasted until June 2012 (six months). Since the Boko Haram insurgency couldn't be brought under control, the federal government issued another state of emergency in May 2013. This time state-wide emergency rules were declared in Adamawa, Borno, and Yobe. From May 2013 onwards, however, due to legislation passed by the House of Representatives, it was ruled illegal for the government to withhold FAAC funds from local governments even in the case of an emergency rule.[13] Thus, subsequent emergency rules did no longer affect allocations. The emergency rules in Adamawa, Borno, and Yobe were extended two times in November 2013, and in May 2014, each time for six months as prescribed by law. President Jonathan wanted to enact another extension of the state of emergency in November 2014, but this time the National Assembly did approve it, ending it by then.

There are two other cases preceding the 2013 legislation in which emergency rule *may* have impacted allocations – though we were unable to find a record of this. The first one was in Plateau state lasting from 18 May to 17 November 2004. The second case was an emergency rule in Ekiti state lasting from 19 October 2006 to 18 April 2007. In both cases,

[13] An unverified claim by Adamawa's governor that funds were still withheld for security operations in August 2013, could not be verified

President Obasanjo tried to extend the emergency rule for an additional 6 months, but the National Assembly didn't approve neither extension (emergency rules have a legal default duration of 6 months).

The overarching observation is that withholding has been rare, quite narrow in time and space, they only implied a delay in cash flows and in most cases were deemed unconstitutional and were not upheld by law.

Unverified claims of deductions To have a better understanding of deductions made at source from the joint revenue accounts, we conduct a media content analysis of all relevant newspaper articles that mention the withholding or deduction of allocations. The media content analysis reveals claims that in some instances parts of the local government allocations are withheld or deducted at source before they reach the local government accounts. Claims often mention deductions related to so-called joint projects. Since the Nigerian constitution is not very clear about the responsibilities of state and local governments in the provision of public goods and services, state governors exploit that lack of clarity to implement "state-local government joint-projects". These joint-projects are a way for state governors to exercise more control over the local government resources. While the funds used for joint projects are still likely to benefit the local government areas, it is often reported that the joint-projects are ripe of corruption and funds siphoned off both by state and local governors. As corruption at the state and local government level are a huge problem, the joint-projects are a way of obscuring the use of allocations.

A second type of deductions made are statutory deductions. These are small percentages of the funds that are deducted before disbursements are made to the local governments. The funds sourced from the deductions are used for all kinds of projects. These can include the funding of councils of traditional rulers or religious rulers, joint expenditures for security forces, infrastructure projects like roads, and joint education and health projects. While funds used for joint projects are diverted before they reach the local government's account, it seems that these moneys still reach the local government areas in the form of some project expenditure, just not through the local government account.

Based on our additional in-depth media content analysis, we identified 79 cases of (illegal) deduction claims. Of these, 21 claims were not specific enough to determine with some certainty a time period when deductions were made. We do not include these unspecified claims in our coding. For five states we did not identify any deduction claims.

We cannot identify any cases where allocations were withheld entirely by the state government over an extended period of time. Thus, even when deductions are made,

there are still allocations flowing to the local governments' accounts in any case. Neither can we find any evidence that deductions are made directly related to political violence. Finally, in many cases the Economic and Financial Crimes Commission (EFCC) was investigating cases of illegal deductions from the allocations. Accordingly, the EFCC holds state governments accountable – at least within its legal capabilities.[14]

Results are robust to dropping data that may have been affected by withholding We have coded up the instances in which allocations may have been temporarily withheld and test to what extent the results are sensitive to the exclusion of data from LGAs that may have been impacted by this. We present the results in appendix table A9. This table presents the results from the main estimating equation dropping successively more data from states that may have been impacted by temporary withholding.

Specifically, in Panel A, we drop all state by month observations in which there may have been withholding of allocations. The column head indicates the instances or cases. Column (5) drops all state by month observations that may have been impacted. In Panel B, we drop all data from all states and years in which there may have been a single month in which allocations may have been withheld. That is, for example, the emergency rule due to the Boko Haram insurgency that started in January 2012 (declared December 31, 2011) and lasted until June 2012 we drop all observations from Borno, Yobe, Niger and Plateau in 2012.

Lastly, in Panel C, we drop all data pertaining to all states for which there *ever* was a potential issue with withholding of allocations. This is a very conservative way of tackling this potential issue and amounts to dropping 26% of the estimating sample in column (5). Throughout, the results are very similar suggesting that the relationship between rents and conflict becomes notably weaker when local governments are elected (as opposed to appointed). This is also relevant given the concern about the role of Boko Haram. Effectively what is done in Panel C, column (4) of the new Table A9, we drop all data pertaining to the states Adamawa, Borno, Niger, Plateau and Yobe. This highlights that the results are robust to dropping data pertaining to states in which allocations may have been withheld.

[14]For instance, in 2006 the Senate directed the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Comission (ICPC) to investigate allegations that the Imo state government deducted 5-6 million Naira monthly from each local government to tar 4km of road in each local government (This Day/All Africa Global Media).

B.3 Violent contest for institutionalized rents

Nigeria is in a state of low-intensity conflict. Generally small scale violent events cause numerous casualties each year. We propose that these kinds conflicts are – to a large extent – contests between political factions for the control over local governments. The control of local government councils brings with it the perks of the allocations from the Federation Account. The poor management and outright embezzlement of public funds, that are likely transferred to the group who holds power instead of used for public goods provision, create grievances within the local population. It may thus lead opposition groups to invest in violence to contest for their share of the oil revenue pie. In the following, we provide anecdotal evidence for these low-intensity conflicts over the institutionalized rents across Nigeria.

One case of such low-intensity conflict is reported in the newspaper *This Day* about violent incidences in Afikpo and Ivo local governments, Ebonyi State. Several cases of gross misconduct and malpractice of local government officers triggered off protest, lead to the destruction of property and the murder of a prominent businessman, the Divisional Police Officer (DPO) in charge of Ivo local government, and the vice principal of a secondary school. It finally developed into a "full-blown" conflict. The newspaper article also suggests that governing politicians should stop to use state resources and machinery to hound and intimidate perceived opponents (*This Day*, 18 September, 2001). The communal conflicts in Ebonyi state continued, as reported by the newspaper *Vanguard* in October 2008. The newspaper described how the upsurge in violence between communities in the state can be traced to the monthly allocations from the Federation Account (*Vanguard*, 28 October, 2008).

Further evidence of violence related to public misuse of funds is reported by Human Rights Watch (2007) for Khana and Etche local governments, Rivers State. In Khana, political opponents tried to remove the chairman from office, yet failed, which again created an increased level of violence and insecurity. In 2006, opposition forces burnt down a part of the new local government secretariat in a night-time attack. The very public revolt has helped to cast light on the rampant government malfeasance and its impact on the health and education sectors. The chairman was accused of having channelled large sums of money into dubious or non-existent projects, and that he also passed some of that money on to thugs to enforce his will in Khana (Albin-Lackey, 2007).

In Etche local government, chairman Nwuzi was elected into office in 2004. By the end of 2005, local government councillors charged him of misappropriating a large por-

tion of what they called "huge monthly allocations to the council". Their grievances were also triggered by the alleged failure to pay salaries and other allowances that were due to them. Councillors also accused the chairman of using "thugs equipped with dangerous weapons" to intimidate them into abandoning their request to get their share of the allocations paid into to local governments account in the first 18 months of the chairman's office (Albin-Lackey, 2007, p. 64). According to the report, local councillors were even forced by thugs, also known as the chairman's "boys", to sign loyalty oaths to stop asking for their share of the accounts. Apparently, the local government chairman Nwuzi had to pay large amounts of the monthly allocations to his political "godfather", the Rivers State Commissioner for Sport who helped him to win office. When the chairman had to flee after a heated confrontation with local residents over the replacement of an electrical transformer, he apparently shot wildly into the crowd killing one person (Albin-Lackey, 2007, p. 65).

Overall, there is plenty of anecdotal evidence of violence related to the contest over resource rents disbursed to local governments as monthly allocations from the Federation Account. Violence is reported to be associated with the misconduct of local government chairmen and their failure to provide education and health services, mismanagement of local public finances such as omission of paying salaries, or the embezzlement of public funds. The acts of fraud provokes violent reactions by opposing political groups who want to claim their share of the pie. Even the Boko Haram conflict is reported to be related to local government mismanagement by observers, as we argue in great detail in the following section B.4.

B.4 Case study: Boko Haram contesting political power

Boko Haram's investments in violence and struggle for political power do actually fit astoundingly well with the logic of political violence (Besley and Persson, 2011). The sect was founded in opposition to a corrupt local political elite that would transfer rents to their own political factions and patronage networks. These incumbent transfers created grievances and frustration among large parts of the population which again fuelled support for Boko Haram – until they turned more terrorist after 2009. Yet, Boko Haram also benefited from direct links to an incumbent local government chairman who likely made transfers to the sect for several years. In the following, we describe the case in sufficient detail.

Access to and exclusion from political power Historically, the rivalries and struggle for access to state power between different factions of Islam, but also between Muslims

and Christians in Northern Nigeria have been evolving over centuries and continuously led to violent conflicts (De Montclos, 2015). Islamic dissenters were long excluded from society.[15] The 1903 British conquest destroyed the Sokoto Caliphate in Borno and neighboring states, which was itself the result of the Usman Dan Fodio *Jihad* in the early 19th century. The British reformed the justice system by downgrading the Islamic *Sharia* law, secularized the state, and introduced a Western education system. The *Uluma*, scholars and intelligentsia of Islamic societies, were marginalized and alienated from government under colonialism. Muslims with Western education became the new dominant elite that inherited power and resources from the British at the end of colonial rule in 1960 (Wakili, 2009).

Four decades later, it was the transition to democracy in 1999 that produced again a new political elite across Nigeria, commanding considerable financial resources (International Crisis Group, 2010). These newly elected politicians were often in conflict and competition with traditional religious leaders, challenging their authority and struggling over the implementation of *Sharia* law. One religious group trying to gain influence was *Jama'atu Ahlis-Sunnah Lidda'awati Wal Jihad* ("People Committed to the Propagation of the Prophet's Teachings and Jihad") that became later known as Boko Haram.[16] The new incumbent elite that rose to power in 1999 was seen as bringing all the vices of "Western" civilization and governance.[17] Boko Haram's primary motive was to expose and root out that corruption by taking over power at local and state governments.

It is common for political office holders to maintain close affiliations with various religious groups that form their electorates, because that is how they yield and secure political power (Alkali et al., 2012). From the early days of Boko Haram, its founder Mohammed Yusuf benefited from close connections to people in local governments that supported his cause. A close associate of Muhammed Yusuf was Alhaji Buji Foi, a two-time council chairman of Kaga local government[18] in Borno state. As local government

[15] See e.g. LSE blog post "Long before Boko Haram, dissenters were driven to the brink in Northern Nigeria", published on 14 January 2015 [link]).

[16] In 2002, Muhammed Yusuf, an early follower of the Sahaba group ("The Prophet's Companions", founded in 1995) increasingly gets in conflict with the Sahaba group's leaders, and separates part of the Sahaba group to found Boko Haram (De Montclos, 2015, p. 237).

[17] Boko Haram does not in any way mean "Western Education is a forbidden" as the media often explains its name. Boko Haram actually means "Western Civilisation" is forbidden. The difference is that while the first gives the impression that Boko Haram is opposed to formal education coming from the West – which is not true–, the second affirms its members' belief in the supremacy of Islamic culture (not education), for culture is broader, it includes education but is not determined by Western Education. (Vanguard 2009, cited in Onuoha (2014)).

[18] Kaga local government area in Borno state has continuously been a focal point of Boko Haram attacks and remains so until today. See e.g. https://reliefweb.int/report/nigeria/fact-finding-mission-

chairman, Buji Foi had access to local government allocations and he used these resources to employ political thugs affiliated with Boko Haram to help Ali Modu Sheriff win the governorship election of 2003.

Through its activities and investments in violence (see below) Boko Haram secured direct access to local and state government power until around 2008. Only the extra-judicial execution of its leader, Muhamed Yusuf, and its closest ally in government, Alhaji Buji Foi, in 2009 further radicalized the sect and turned it into the terrorist group that we know today. Although it can't be proven, the killing of Yusuf and Buji Foi happened under the watch of governor Sheriff and by his police forces. It was likely ordered to eliminate any evidence as to the financing and links of Boko Haram to the local and state governments. Had Boko Haram had continuing access to local government power and funds, it may have remained the type of armed religious militia that it was before 2009. Nonetheless, still in 2012 Nigeria's President Goodluck Jonathan said that Boko Haram has infiltrated the executive, parliamentary, and judicial wings of government (Reinert and Garçon, 2014).

Investments in violence through rents and conscripting Boko Haram has invested in violence to contest resources and battle for politicians to win office. Investments in violence are financed both through government transfers and private contributions. In return for armed support, politicians financed its cause, promising various endowments. Since Alhaji Buji Foi was an incumbent local government chairman, Boko Haram can be comprehended as an investment in his private militia. In 2003, Ali Modu Sheriff challenged the incumbent governor Mala Kachalla (Reinert and Garçon, 2014). Thugs linked to Boko Haram were hired to help win the governorship election. Confirming these investments in violence, a 2011 government report traced the origins of private militias in Borno state, of which Boko Haram is an off-shoot, to politicians (i.e. Alhaji Buji Foi) who set them up in the run-up to the 2003 general elections (reported by Premium Times, 4 September 2014).[19] Sheriff reportedly promised Boko Haram strict implementation of *Sharia* law, 50 million Naira reward, 50 motorcycles and the office of the Commissioner for Religious Affairs in exchange for their support (Onuoha, 2014). Since Sheriff's campaign succeeded, governor Sheriff soon after inauguration created a new Ministry for Religious Affairs, and appointed Buji Foi as its pioneer commissioner.

communities-kaga-and-konduga-lgas-23-february-2016.

[19]Goodluck Jonathan Administration had set up the Ambassador Usman Galtimari Panel in August 2011 to investigate the genesis of the insurgency in the North East. See the Premium Times article "How Ex-Gov Modu Sheriff sponsored Boko Haram" by Femi Falana, Sahara Reporters, published 4 September 2014.

Boko Haram became such an important armed actor in the region that it was seen as untouchable by the authorities and of immense importance to the political actors holding the reins of government (Alozieuwa, 2016). Militias, including the 'Yusufiyya' (Boko Harma with Yusuf Mohammed as its leader) and 'ECOMOG' in Borno, 'Yan Kalare' in Gombe, and 'Sara Suka' in Bauchi, had strong links to prominent politicians, were armed with sophisticated weapons and used extensively as political thugs. Investments in violence by politicians is hence prevalent, and Boko Haram is not different from other armed militias (at least during our study period).

Boko Haram benefited not only from government patronage, it also collected "taxes" from supporters by promising them to take (back) power. It seems that it was able to solve the collective action problem of taxing/conscripting citizens as described in the Besley Persson model. Alozieuwa (2016) reports that people sold their belongings in order to contribute financially to save Islam from the corrupt Western governance influence and domination. According to Onuoha (2014), politicians, government officials, businessmen and other individuals, who believed in the teachings of Boko Haram to impose a less corrupt Islamic governance (within the Nigerian federal governance structures), have also been a source of funding for Boko Haram.[20]

Between 2003 and 2007, Boko Haram regularly attacked local police stations and government buildings (Reinert and Garçon, 2014). Security forces often went on a rampage to retaliate against the slaying of soldiers or policemen. When Yusuf started preaching about a violent take-over of political power, local chairman Buji Foi, however, distanced himself and stopped following his teachings. In the same year 2007, Buji Foi also fell out with governor Sheriff and resigned as commissioner of the Ministry for Religious Affairs under dubious circumstances.[21] He retired to his farm and later left the political stage.[22]

Following the shooting of 14 of its followers in a joint military and police operation in Borno State in 2009, Boko Haram launched a counter attack, which was quelled by a military crackdown that allegedly left more than 800 dead – mostly sect members and civilians (Reinert and Garçon, 2014). On July 30, 2009, Mohamed Yusuf was arrested by the Nigerian military as part of the joint security operation and handed-over to the local

[20]For instance, on 21 November 2011, state security operatives arrested a serving senator representing Borno South Senatorial District, Mohammed Ali Ndume, who was subsequently arraigned before an Abuja High Court for ties with and sponsorship of Boko Haram (Abonyi, This Day, 2011 cited in Onuoha (2014)).

[21]See the *Prince* newspaper article for a more detailed account: "Boko Haram: why Buji Fai, sect's financier, was executed", August 9, 2009.

[22]According to Wikileaks, Buji Foi became local governor only during Sheriff's first term and remained in office as Kaga local government chairman until December 2008, thus some information is conflicting, see https://wikileaks.org/gifiles/docs/50/5013218_buji-foi-.html.

Nigerian police. He was executed extra-judicially on the same day.[23] Just one day later, on July 31, 2009, former local chairman and commissioner Buji Foi was arrested by police as well.[24] He was then also extra-judicially killed in policy custody by police officers, together with dozens of other individuals.[25] Several well-informed security sources believe that Yusuf's and Foi's killings were ordered to eliminate any information concerning the support they had previously received from local political authorities (International Crisis Group, 2010). In the aftermath of the killings, Boko Haram members engaged in a series of targeted assassinations on individuals directly related to the crackdown or those suspected of having provided information or support to the operation (Serrano and Pieri, 2014).

The uprising and counter operations by the military ushered in a new evolution of the sect, one that embraced the far more violent tendencies of its new leader, Abubakar Shekau (Serrano and Pieri, 2014). Shekau's ascension to power led to further investments in violence and a subsequent rapid escalation. The Joint Task Force (JTF) appointed to counter Boko Haram committed unlawful violence. According to witnesses, the JTF has engaged in excessive use of force, physical abuse, secret detentions, extortion, burning of houses, stealing money during raids, and extra-judicial killings of suspects (Human Rights Watch, 2012).[26] The widespread human rights abuses and indiscriminate crackdowns in the North further alienated an already sceptical local population (Serrano and Pieri, 2014).

Transfers to incumbent groups cause grievances One of the primary motives of Boko Haram was to call out and expose corruption among political groups in power. Corruption in this context are transfers by incumbent politicians to their patronage networks and religious or ethnic groups. Since the grievances were felt across large swaths of population, the sect could easily recruit new members, facilitated by dire job opportunities (low opportunity costs). The profitable transfers to other groups and the low levels of public good provisions by incumbent governments made contesting power all the more beneficial.

Yet, as described above, for several years Boko Haram was itself benefiting from po-

[23] The extra-judicial killing of Mohamed Yusuf is reported and shown in this Al Jazeera video: https://www.youtube.com/watch?v=tlpZr8IRUcY (Warning: viewer discretion is advised).

[24] The reports on the exact dates of Buji Foi's and Yusuf's executions are conflicting.

[25] Alhaji Buji Foi's apparent execution was recorded on video and published on Youtube https://www.youtube.com/watch?v=N_m4PBSzU7Y (Warning: viewer discretion is advised.).

[26] Find the Human Rights Watch 2012 report here: https://www.hrw.org/sites/default/files/reports/nigeria1012webwcover_0.pdf.

litical incumbency. In 2003, Yusuf was permitted to develop a compound with a mosque and a Quranic school in Maiduguri (Reinert and Garçon, 2014).[27] Boko Haram benefited from government allocations being doled out as patronage to religious organizations in return for staying non-violent. Buji Foi as commissioner for Religious Affairs was directly responsible for paying extortion fees to religious leaders.[28]

Whether Boko Haram could have been included in a non-violent political process of improved government representation, is rather speculative at this point. According to our findings though, the better inclusion of Boko Haram and other excluded ethnic and religious groups in local governments of northern Nigeria would likely have drastically reduced violence.

B.5 The role of local government elections

The Nigerian Constitution of 1999 stipulates that local government councils must be elected by the people (Federal Republic of Nigeria, 1999). Even though the federal structure of governance includes three tiers of government, the constitution gives the state governments considerable influence over the organization and regulation of local government council elections. The main problem with the constitutional provision guaranteeing local elections is that it treats the local governments not rigorously as an independent tier of government. In this section we provide some additional context regarding local government elections and how they involve political violence.

In contrast to the Independent National Electoral Commission that supervises the general elections, State Independent Electoral Commissions are appointed by the state government. It is the body to organize, undertake, and supervise local government elections. It consists of a chairman and no less than five but not more than seven other members (Federal Republic of Nigeria, 1999). Furthermore, the state government is also responsible for providing the financing for the conduct of local council elections so that local officials hinge on the intentions and decisions of the governor.

The first post-autocratic local government councils elections were successfully held in November/December 1998 in all local government areas as a preparation of the democratic presidential elections in February 1999. This marked the end of military rule and the transition to civilian rule. After the first term of the initially elected local councils ended

[27] According to Alozieuwa (2016), the compound in Maiduguri was at times lined with exotic cars that belonged to powerful individuals who would arrive with tinted glasses that shielded them from easy identification when visiting Yusuf. The same compound was apparently also used for militant activities.

[28] See Prince, 9 August 2009, "Boko Haram: Why Buji Foi, sect's financier was executed". According to this article, Ministries for Religious Affairs in Northern Nigeria primarily have the purpose of keeping good liaisons with religious groups.

in May 2002, confusion emerged as the national voter register was not updated. According to the Supreme Court an updated voter register was a prerequisite to conduct local elections. As a consequence, in June 2002 most state governors appointed so-called 'caretaker' or 'transition committees' to (temporarily) run the local governments. Ever since that decisive moment in 2002 when caretaker committees were appointed, the election of local governments became a political controversy.[29] Only in 2004, most state governments held local government elections again once the voter register was updated. Yet, a number of states found all sorts of reasons not to hold local elections and henceforth appointed caretaker committees in the subsequent years. Henceforth, the local government councils were in many cases not elected bodies of government anymore, but appointed bodies in many instances, exhibiting substantial variation across states. While some states, like Cross River or Enugu, local government council elections have been held (almost) consistently throughout the period from 2004 to 2014, and hence were more democratic in that sense, other states like Ondo or Yobe state had appointed caretaker committees for the larger part of that same period (see Panels C and D in Figure 2).

We draw data on the conduct of local government council elections or appointment of caretaker committees from a media content analysis using Nigerian Newspapers, presented in more detail in Kyburz (2018). Since official information on local councils is not available, we have to resort on media outlets, to gather a consistent picture about local governance in the 774 local government areas. The newspaper articles are collected in the FACTIVA media data base.[30] From local Nigerian newspaper articles, we extract information on local government council elections.[31] By using a series of keywords, it is possible to determine for each of the 774 local government areas the date when local elections were held, the tenure of elected councils, and the periods when caretaker committees were appointed.

While some local government councils are elected and others appointed, the quality of the conduct of local elections also varies considerably across states. Importantly, we argue and provide evidence that elected local governments are more cohesive than appointed local governments. Nonetheless, even among the elected local government councils, in-

[29] See Kyburz (2018) for a more detailed description of the controversy surrounding local government council elections and the appointment of caretaker committees.

[30] The FACTIVA media data base is a product by Dow Jones and contains news articles and information from over 9'000 international, national and regional news publications out of 152 countries, including several Nigerian newspapers.

[31] Most information is extracted from Nigerian newspapers *This Day/All Africa Global Media*, *Daily Champion/All Africa Global Media*, *Vanguard/All Africa Global Media*, *Daily Trust/All Africa Global Media*, and *Daily Independent/All Africa Global Media*.

stitutions may be more or less democratic. While elections into the local government councils were reported to be frequently not free and fair, Kyburz (2018) describes in more detail how the conduct of local government elections is indeed an important possibility for opposition groups to compete for power. Local elections seem to intensify the formation of political parties as opposition groups make strategic choices to compete. In many cases, the major incumbent and opposition parties hold primary elections, which adds another layer of contesting power. The local elections elevate the political competition both within and among parties. Local elections likely increase the voters' awareness about local struggles for power and representation. In many cases, election tribunals are instituted post election where complaints can be deposited and the tribunals have to rule over the validity of election results. Opposition parties often addressed the tribunals to contest the election results when they feel disadvantaged over the incumbent party.

The local electoral democracy thus differs in quality across states and competing power in local councils may be easier in some states than in others. How "free and fair" elections are and whether opposition groups have a fair chance of competing likely also has an effect on whether violence erupts in the months around elections. Civil violence and riots are often related to elections, be they general elections or local government elections. Figure A1 in the appendix depicts a surge in violence around local government council elections. Local elections thus seem to be a trigger event for violence when opposition parties perceive that elections are not held in a free and fair manner and demand a level playing field. The event of a local election may in this case be an opportunity for political factions to show their force using violent means if necessary.[32] In this paper we focus on the systematic violence that is not specifically related to elections, but happens throughout the term periods of local politicians.

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